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JOURNAL

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RAISING TURKEYS.

S. Froome,

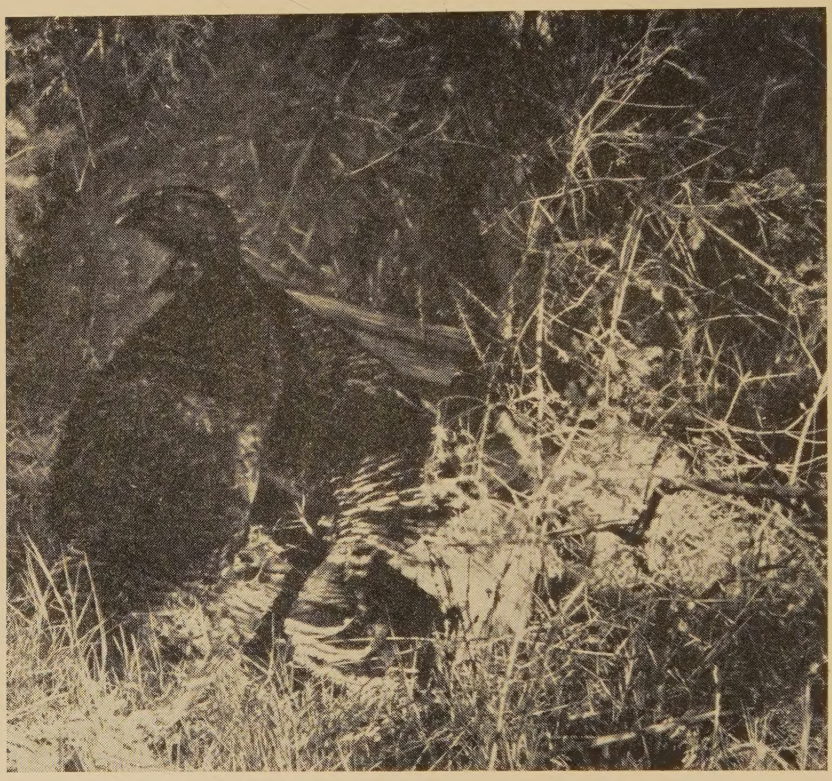
Officer in Charge, Poultry Branch.

IT can be stated, with confidence, that few persons in Western Australia eat turkey meat more than once a year, and many have not tasted it for some years. The majority of households do not include poultry in their usual diet and turkey is on the menu for special occasions only. The demand for turkeys by the local market is relatively small, but it is seldom that sufficient turkeys are marketed to meet the demand. There are approximately 14,000 turkeys in this State. Only about 4 per cent. of these are found in the metropolitan area, and the remainder are fairly evenly spread over the farming areas.

The turkeys raised in the wheat belt area are, as a rule, allowed open range; the hens make their own nests and brood the young poults under natural conditions. A small number of farmers in the lower South-West have made a special feature of turkey raising and are producing a number of well fleshed birds which bring good market prices.

Little attempt has been made in this State to raise a large flock of turkeys under confined conditions, although this system is becoming popular in many countries where turkeys are raised in quantities.

At the present time the export market is capable of absorbing large quantities of turkeys and as the demand on the local market is seldom satisfied it would appear that further development of turkey raising is justified.



Turkey hens nesting in the bush under natural conditions.

TURKEY STOCK VARIETIES.

All turkeys have approximately the same body shape and, although there are a number of varieties, there is only one breed. There are many varieties of domesticated turkeys, all of which are descended from the wild turkey. In the U.S.A. many varieties have developed from the wild stocks native to that country, but the two most popular varieties are the Broad-breasted Bronze and the Beltsville Small-type White. The former has been developed, by careful selection, from the Standard-bred bronze and its increased size is due to more extensive fleshing on the breast and thighs. The latter was developed through cross breeding and selection at the Agricultural Research Centre at Beltsville to meet the needs of the average family.

In Western Australia the majority of the turkey stock is of the Standard-bred Bronze variety and a small number of the White Holland variety. A comparison of the weights of the varieties is given in Table 1.

Table 1.

Variety.	Yearling Hen.	Yearling Tom.
Broad-breasted Bronze	20 lb.	38 lb.
Standard-bred Bronze	18 lb.	33 lb.
White Holland	16 lb.	30 lb.
Beltsville Small-type White	12½ lb.	24 lb.

A brief description of the desired shape in turkeys of both sexes is as follows:—

Head—appears strong, wide, fairly deep but not coarse.

Beak—strong, medium length, and well curved.

Dewbill or Snood—(The tubular, fleshy appendage at the base of the beak.)

—Of the male—Good size and very extensible (4½ to 6 inches when fully extended).

—Of the female—Much smaller and not very extensible (not more than 2 inches when fully extended).

Eyes—slightly oval, set well out and appearing alert.

Neck—moderate in length.

Beard—(A cluster of coarse, hairlike feathers attached to the upper part of the breast.)

—Of the male—commonly 5 to 7 inches long.

—Of the female—absence is preferred but occasionally reaches 3 inches in length.

Wings—strong, good sized, blending smoothly with body plumage, wide overlapping feathers.

Back—broad, well fleshed, sloping downwards in a slightly curved line from front to rear.

Tail—full-fashioned and when relaxed continues the downward curve of the back. When strutting the tail feathers are raised and spread.

Breast—medium length, good breadth, well fleshed, straight or very slightly curved.

Body—as a whole is blocky in appearance.

Thighs—medium length and well fleshed.

Shanks—strong, straight, and of moderate length.

Toes—strong, straight, and well spread.

SIZE OF TURKEY REQUIRED TO MEET MARKET DEMANDS.

Although the weights given previously are desirable for those varieties mentioned it is seldom that large birds are seen on the local market. The demand is for well fleshed birds, not over 12 months of age, the toms weighing 18 to 24 lb. and the hens 10 to 12 lb. This type of medium-sized bird can be produced by any good strain of the Bronze variety already in Western Australia. A turkey breeder in the metropolitan area reports that he has no difficulty in obtaining young turkey toms of 18 to 20 lb. weight at eight to nine months of age and that the hens are ready for market about six weeks earlier at an average weight of 10 to 11 lb.

An article by Mr. A. A. McArdle in the "Journal of Agriculture," South Australia, April, 1949, reports the success of a commercial turkey raising undertaking in that State. The owner originally commenced with Bronzewing turkeys and by selection over a period of years has evolved a hardy, smaller bird carrying ample breast meat. The toms weigh 22 to 23 lb. at about seven months of age when marketed and the hens weigh approximately 14 lb. at the same age.

Table 2 shows the desirable weights to suit local demands at 28 to 30 weeks of age of the varieties of turkeys already mentioned:—

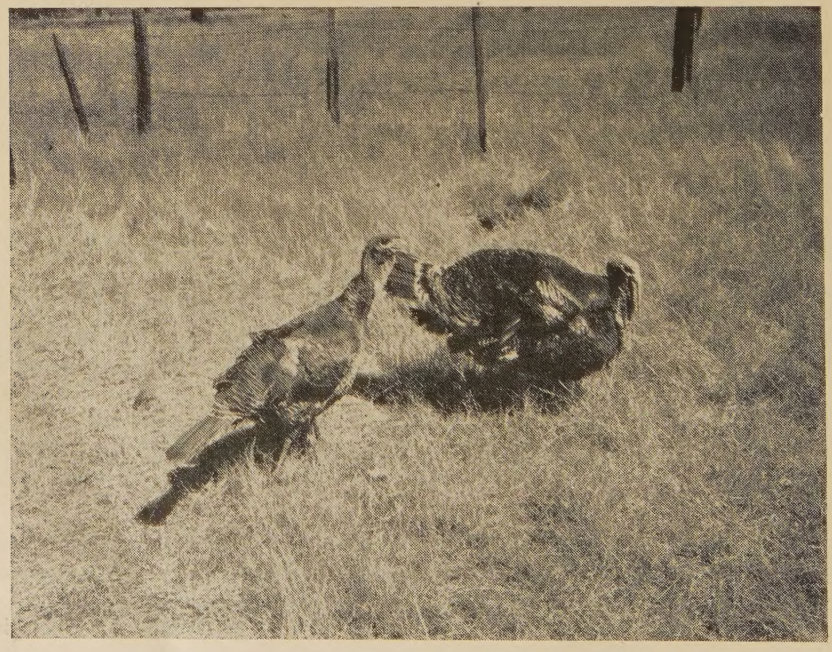
Table 2.

Variety.	Female.	Male.
Broad-breasted bronze	15 lb.	24 lb.
Standard-bred bronze	13 lb.	20 lb.
White Holland	12 lb.	29 lb.
Beltsville Small-type White	10 lb.	16 lb.

When the turkey breeder is selecting his breeding birds he should keep in mind that the consumer requires a medium sized turkey with a well-proportioned body and carrying plenty of meat on the breast and thighs. In a well finished turkey of about 28 weeks of age the edible meat on the breast and thighs amounts to about 65 per cent. of the total edible meat. The large framed bird which is unfattened and carrying little meat on the breast and thighs is not attractive to the consumer and consequently is priced much lower in the markets.

SELECTION OF BREEDERS.

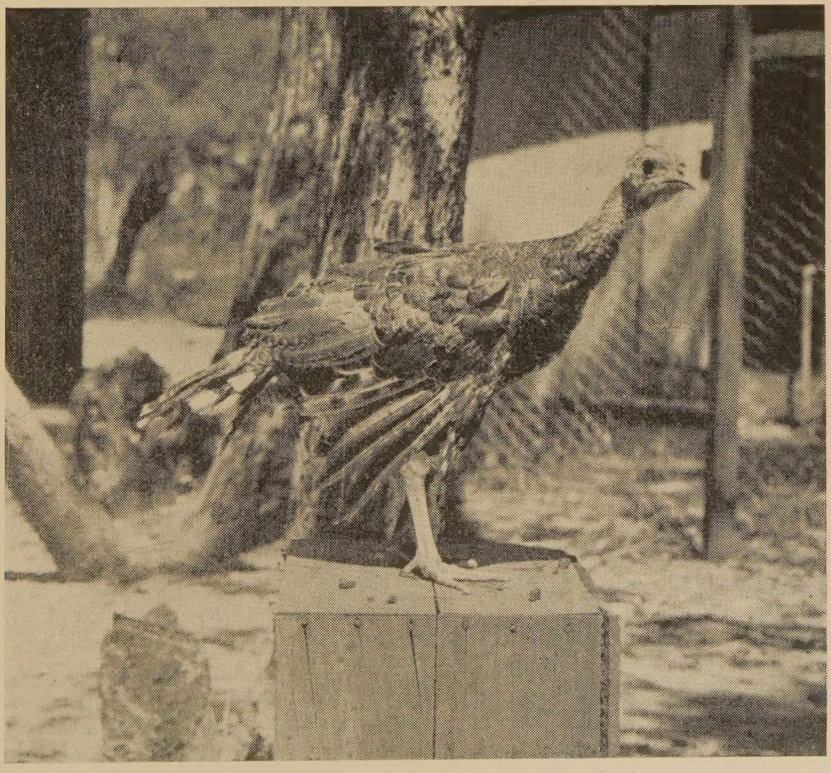
The type of bird required by the consumer has already been described but the breeding stock in addition to having good type bodies that are well fleshed must also possess the following characteristics:—Rapid growth and good egg production. These characteristics are inherited, and even in cases where neither time nor facilities are available to carry out a breeding programme it is possible to improve the quality of the progeny produced from year to year by basing the selection of the breeders on these three requirements.



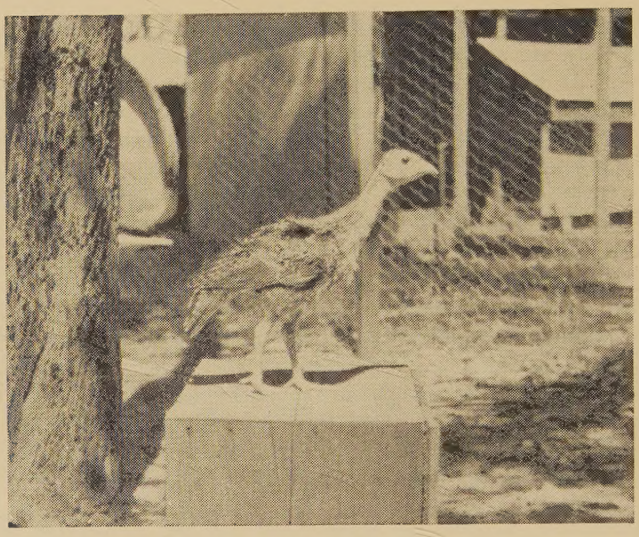
A hen and gobler of the Bronzewing variety. Note the desirable body conformation and balance of the hen.

1. *Body Type and Fleshing.*—The best time to select the future breeding stock is when they are about 28 weeks of age and when the majority are ready for marketing. At that time they must be up to the weights given in Table 2 and as the width of the breast appears to be the most important factor determining the amount of breast meat it would be advisable for the grower in Western Australia who breeds standard-bred bronze turkeys, to endeavour to obtain the weight given in Table 2 for the Broad-breasted Bronze. The young toms and hens selected should have relatively broad and deep bodies with a good length of keel running parallel with the back and relatively short shanks. The desirable measurements of a young tom, 28 weeks of age and weighing about 24 lb. should be approximately:—Maximum shank length 8.2 inches, minimum keel length 7.8 inches and maximum body depth 9.6 inches. The corresponding figures for a hen of the same age and weighing 15 lb., are 6.5 inches, 6.3 inches and 7.3 inches respectively. The figures given should be used as a guide to desirable conformation but in addition the bird must be well balanced. That is, the legs should be strong, not knock-kneed or bowed, and placed squarely under the body and not so far back that the body tilts forward.

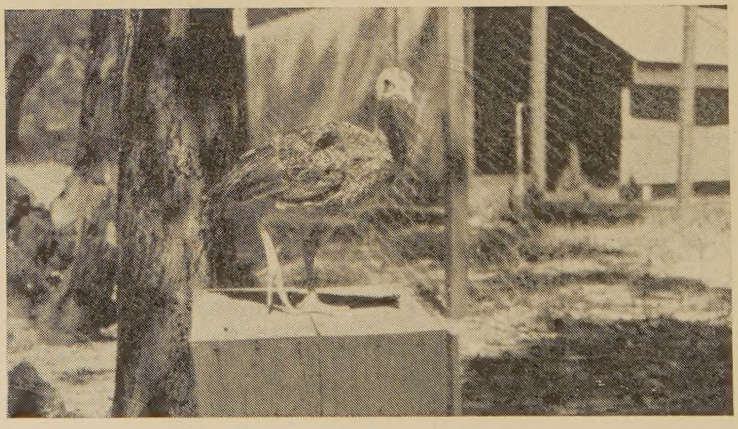
The width and fullness of the breast flesh and the leg fleshing can be determined by handling. The breast should be broad and full along the entire length of the breastbone. The thigh should be plump, well meated towards the hocks and of sufficient size to produce a well-balanced carcass.



Slipped wing:—A wing permanently deformed so that when it is closed the primaries slip down from their normal position under the secondaries.



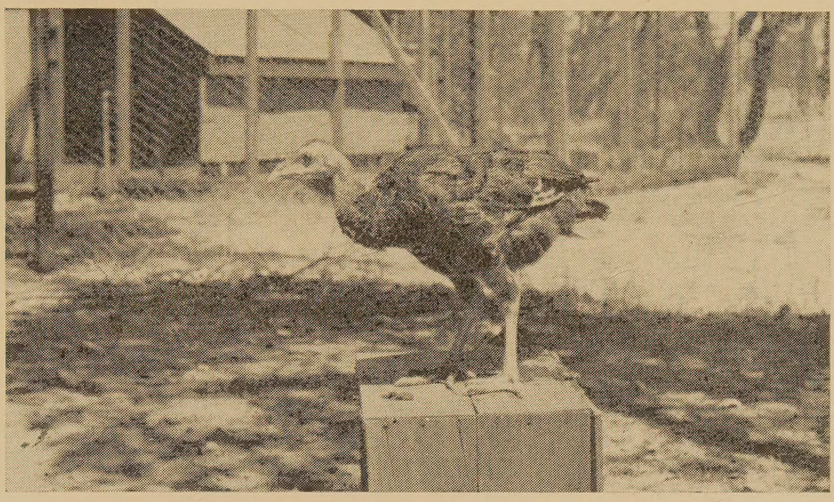
A.



B.

Birds that have any serious defect such as pendulous crop, spraddle or crooked legs, deformed back, crooked keels, deformed beaks and crooked toes should be rejected.

2. *Rapid Growth.*—To make a success of turkey raising it is necessary to market the birds as early as possible, therefore, birds and family groups which show a reasonably fast rate of growth should be marked as future breeders. A practical method of obtaining some information on this point is to examine poults each year at about 16 weeks of age. The best developed males and females should be marked. Many more than will eventually be required should be selected because it is most probable that at least 40 per cent. will not qualify as breeders when they are examined just prior to marketing. If the rapid rate of growth shown at 16 weeks has not been maintained the bird should be rejected as a breeder and sent to market.



C.

D.

Fast rate of growth is a most necessary requirement of turkey raising. A, B, C, D illustrate the growth and development of poults at 2, 4, 6 and 8 weeks of age respectively.

3. *Egg Production.*—No attempt is made in this article to describe pedigreed breeding work as it is relatively expensive and time consuming, and many turkey raisers do not keep sufficient turkeys to justify the time and expense involved. However, where pen mating is practised it is possible to keep some records which will assist in the selection of good layers. The hatching period for turkeys in Western Australia is the months of August, September and October. It is difficult to obtain sufficient eggs earlier in the season, and poults do not grow quickly if hatched after the end of October. The turkey raiser should therefore be most interested in the number of eggs the hens lay in the period June 1st to October 31st. Pen records can be kept showing when the hens commenced to lay, the number of eggs laid each day and the number of times any hen became broody.

By marking the poults from each pen, comparing the pen records, and by mating them in family groups the following breeding season, some improvement in egg production may be achieved.

The average egg production, during the period mentioned, of a young hen in her first laying season would be 40 to 50 eggs. The progeny of a hen which goes broody frequently should not be used in future breeding operations, because broodiness is an inherited characteristic and each broody period reduces egg production.

It is not economical to use broody turkey hens to incubate eggs. The object of the hens in the breeding pen is to produce as many fertile eggs as possible during the short hatching season.

BREEDING PRACTICE.

Age of Breeding Stock.—Reference has been made to the marking of young turkeys for future breeding stock. For the production of fertile eggs and vigorous poults, well-grown young toms and hens are quite satisfactory. Poults hatched from young turkey hens grow as fast as those from older hens, but it must be realised that the young breeding hens are untested for livability, hatchability and egg production.

Turkey hens usually lay best in their first laying year and as the eggs are produced exclusively to secure poults the higher egg production of young hens results in lower cost per poult hatched. Provided broodiness is discouraged by placing the broodies, as soon as they go broody, in coops with slatted floors, the expected egg production from young hens would be approximately 50 eggs per hen during the hatching season (June-October inclusive).

During the second laying period one would expect 35 to 40 eggs and in her third laying season approximately 30 eggs. Good fertility is usual when well-matured males of about 8½ months of age are mated to selected 8 months old females. If second season hens are used as breeders it is advisable to mate them with young toms as older males are frequently sterile.

Breeding from young stock has the advantage that the majority of the breeding stock can be marketed immediately after the end of the hatching season.

Pen and Flock Matings.—With either type of mating the objective is to secure good fertility as every infertile egg means a loss of money. In pen matings it is usual to use one young tom to 12 hens but better fertility can be obtained by using two toms, that is, use each one every other day. When changing the males the one in the pen should be removed before the second male is introduced. It is advisable to put the toms with the hens about one month before the hens commence laying, as matings appear to be less frequent after laying has commenced. To prevent injury to the backs of females the toe nails of the toms should be clipped every three or four weeks during the breeding season. Although fertile eggs will be secured a day or two after matings have taken place, eggs should not be saved for incubation until 7 days have elapsed. Good fertility will be maintained for two weeks after the toms have been removed and some fertile eggs may be produced for as long as 6 to 8 weeks but fertility decreases rapidly after 14 days. Flock mating is successful when the birds have plenty of range. If they are restricted, the toms spend too much time fighting each other. In a large flock of Bronze turkeys, one tom to 12 to 15 hens can be used provided the males are active

birds and not too large and clumsy. At the commencement of the breeding season a reserve of males should be kept as a proportion of the breeding males will be sterile or will not mate for one cause or another. Testing the eggs for fertility after they have been incubated for 9 days, should give an indication of possible fertility, and any male that is likely to produce a low percentage of fertile eggs should be removed and replaced by another.

Fertility is likely to decline in the latter half of the breeding season and a second set of toms should replace the first if good fertility is required late in the season. As with pen mating, the double set of toms could be used alternatively every three days throughout the breeding season. This arrangement should give good fertility for the entire season.

Fertility varies considerably under different conditions and throughout the season, but should not be lower than 83 per cent. Ninety per cent. or better should be the required standard. The hatching season in Western Australia is from the middle of August to the end of October, and it is not uncommon for fertility to be nniely per cent. during this period.

Watering equipment for adult birds in the shed of a breeding pen

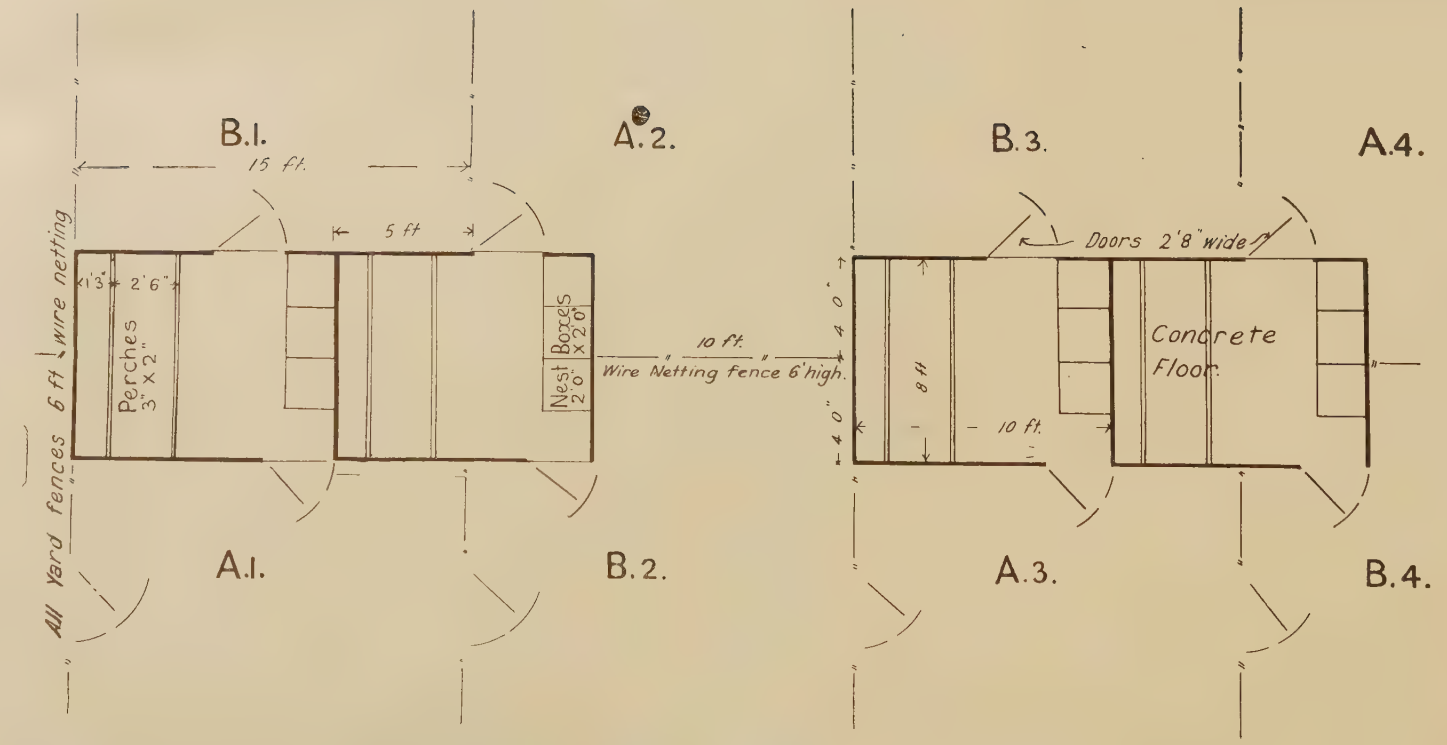


Fig. 1.

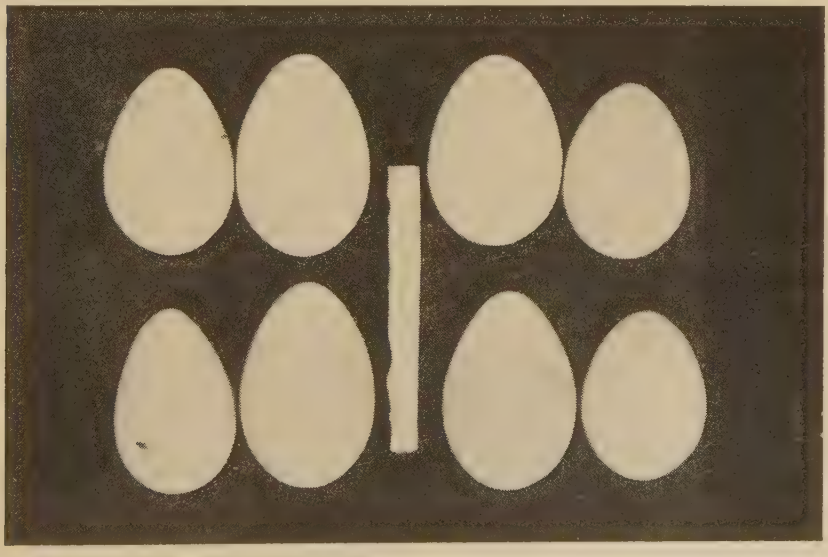
Suggested design for sheds and yards for breeding pens. The double yards prevent the males fighting through the wire fences and assists in keeping the yards in a sanitary condition.

Yards and Houses for the Breeders.—When the system of breeding consists of mating one male with 12 hens, and several such matings are required, it is necessary to provide permanent breeding pens. Although these pens will only be used for six months or less it is most desirable that they be equipped with double yards. An open fronted shed of simple design, 10 feet long by 8 feet from front to back would give ample accommodation. Two perches, each 7 feet long or 3 perches 5 feet long would give sufficient roosting space, and the nest boxes could be placed along one end wall. Open nests about 2 feet square and 1 feet deep, and placed 18 inches above the floor level will be adequate. Long narrow yards appear to give the best results, each house has one yard in the front and a second yard at the back of the house.

A yard 15 feet wide and 150 feet long will give plenty of room for the breeding stock. A number of yards can be built side by side and by using the front yard of the first pen and the back yard of the second pen and so on, there will always be a vacant yard between the breeding stock. This is a decided advantage as it prevents the males fighting through the fence and any bird which flies over a fence will most probably be found in the vacant yard.

A door in the back of the shed gives access to the back yard. The yards should be sown with permanent pasture grasses and a fortnightly rotation will allow the green feed to recover and the best use of the pasture will be made. The usual yard fences are made of 6 feet wire netting, with additional netting placed to prevent the birds flying on to the houses or tops of gates. The writer has seen breeding pen fences only three feet high which the owner claimed were as efficient as the 6 feet fences.

A suggested design for the sheds and yards is shown in Figures 1. To prevent close contact of breeding stock yards A1, A2, A3 and A4 should be used in the first instance and alternated with yards B1, B2, B3 and B4, at fortnightly intervals.



Desirable range of weight for eggs for incubation:—Minimum 2½ ozs., maximum 3¼ ozs. The four eggs on the outside are 2¼ ozs. or less and should be rejected. The remainder are 3 to 3¼ ozs. and are normal in shape. A typical turkey egg of 3¼ ozs. is approximately 2.66 inches in length and 1.9 inches in diameter. (The strip of paper is 4 inches in length.)

Care of Hatching Eggs.—Improper care of fertile eggs lowers their hatchability and increases the cost of each poult. Therefore, the selection and care of the eggs to be incubated is important. The weight of individual turkey eggs show a very wide variation, some hens lay eggs which average only 2⅛ ozs. while others average 3½ ozs. A desirable range for hatching eggs is a minimum weight of 2½ ozs. per egg and a maximum of 3¼ ozs. In shape, turkey eggs are similar to hen eggs except that the small end is more pointed and as egg shape and weight are inherited it is advisable to select for incubation those eggs which conform to the normal.

Reject all eggs the shells of which are thin or rough and those which have a chalky white porous appearance because, as a rule, they give poor hatchability.

Hatching eggs should be collected in wire baskets three or four times daily and immediately deposited in a cool place. Turkey eggs deteriorate rapidly in hatchability after 14 days holding if the temperature is too high or too low. Temperatures below 35°F and above 65°F appear to be most injurious if the eggs are held for more than 10 days before being placed in the incubator. The ideal holding conditions are a temperature of 55°F with a relative humidity of about 80 per cent. Storing eggs in the well known "Coolgardie Cooler" will be most satisfactory.

Eggs can be stored on their sides or with the small end down and should be turned daily during the holding period.

NATURAL AND ARTIFICIAL INCUBATION.

Natural Incubation.—The natural incubation of turkey eggs by using a broody hen or turkey hen is not sound practice, because the broody is out of egg production during the brooding period. However, a short description of the method of setting a broody may be useful. It must be stressed that artificial incubation should be practised wherever possible as it is not always possible to secure broodies at the proper times, and broodies may be carriers of disease to the young poults.

The incubation period for turkey eggs is 28 days. It is advisable therefore to use hens of the heavier breeds which have been broody for at least two days to ensure them sitting for the full period. A nest should be made in a secluded spot by scooping out the soil to make a saucer-shaped depression. A small amount of nesting material is then placed in the hollow. Cover the nest with a suitable box or coop. A nest for a turkey hen should be much larger than one for a fowl and should be about 2 feet square. A broody hen of one of the heavy breeds will cover 8 to 10 turkey eggs but a turkey hen will take 15 to 18 eggs. Broodies should be freed from lice by dusting them with sodium fluoride at the time they are set otherwise the lice may irritate the broody to such an extent that she will desert the nest. If possible two hens or turkey hens should be set at the one time and when all the poults have hatched out they can be given to one of the two broodies and the other can be returned to the laying pen. A good sized hen will easily mother 12 poults and a turkey hen can be given 20 to 24.

Water and grain should be always available to the setting hen so that she may feed whenever she leaves the nest.

When the eggs begin to "pip" the front of the nest should be closed to prevent the broody leaving the nest before the hatch is complete. If the bird is quiet the empty shells can be removed from the nest during the hatch. Those eggs not hatched by the end of the 29th day should be discarded.

Natural incubation. The turkey hen has made her nest in a secluded spot, is incubating the eggs, and is not producing fertile eggs.

Artificial Incubation.—Hatching poults in incubators has become the normal method. Among the advantages obtained over natural hatching are:—

(1) The poults can be hatched at the correct time of the year.

(2) There is less labour involved in relation to the number of poults hatched.

(3) Less danger of the poults contracting disease.

(4) The hatching season can be reduced to a shorter period, in which more poults can be produced.

Many types of incubators have been successful in hatching poults and generally the operating conditions for turkey eggs are the same as for hen eggs. In all types of incubators the temperatures suggested by the manufacturer should be closely followed. As a general guide the temperatures in a small incubator should be

100.5°F for the first week, 101.5°F for the second week, 102.5°F for the third week, and 103°F for the fourth week when the bulb of the thermometer is level with the top of the turkey eggs. With the majority of cabinet-type, forced-draft, incubators the temperature is maintained throughout the 28 days at 99.5°F.

When a separate hatching compartment is used the eggs are transferred on the 24th day and the suggested temperatures vary from 97°F to 99.5°F depending on the make of the incubator.

Correct humidity is most important for the successful hatching of turkey eggs. Although the eggs remain in the incubator a week longer than hen eggs they lost slightly less moisture and the poult when hatched weighs about 66 per cent. of the original weight of the egg. To provide optimum conditions for the growth of the embryo the eggs must not lose too much moisture and best results in Western Australia are obtained when the relative humidity is about 60 per cent. during the first 24 days and about 69 per cent. during the last four days. The reader will note this is not in entire agreement with the figures given in Table 3. This is because the figures given above are practical recommendations based on the results of experiments and the table was published by the Smith Incubator Company as a general guide for the incubation of turkey eggs.

The relative humidity should be checked by the wet and dry bulb thermometer readings, but if these facilities are not available a practical guide to humidity is the relative size of the air cell in the egg at different times during the hatch. The air cell being too large at any stage will denote that more moisture is required in the incubator and the reverse will indicate that excess moisture is being maintained. Should the relative humidity of the atmosphere be low during the last four days of a hatch, it may be necessary to lay damp cloths on the top of the hatching trays to obtain the optimum conditions for hatching.

Provided the manufacturers' directions are followed practically all incubators provide adequate ventilation. Any incubator which has given good hatches with hen eggs should give sufficient ventilation for the hatching of turkey eggs.

Experiments have shown that turkey eggs require more turning than hen eggs, in fact in the test, optimum results were obtained when the eggs were turned every three hours day and night for the first 21 days. In practice, turning the eggs five times daily will give good results. The first turning being done early in the morning and the last late at night so that the eggs do not remain unturned for more than about eight hours. Turning after the twenty-first day does not appear necessary and they must not be turned after the 24th day.

It is usual to test the eggs on the tenth day and remove the infertiles and dead germs. A second test on the 21st day will reveal eggs containing embryos which have died after the 10th day. These should be removed and the remaining eggs transferred to the hatching compartment of the incubator.

It may be necessary when the hatch is partly completed to remove some of the poults and the empty shells to make room for the other poults which are hatching out. Small type incubators usually have a removable strip at the front of the egg tray to allow the poults to drop into the nursery tray but this strip should not be removed until about one half of the poults have hatched. The nursery tray should be covered with rough surfaced material as poults may injure themselves on a smooth surface.

An incubation chart for turkeys published in "Hatchery Management," by R. C. Hartmen and G. S. Vickers gives concise information on the troubles which occur in incubating turkey eggs and this information is given in Table 3.

TABLE 3.

Type of Trouble.	Probable Causes.	Indicated Remedies.
Eggs clear after eight to 10 days of incubation	(1) Eggs held too long	(1) Do not hold eggs for more than 10 days before setting.
	(2) Inferior toms	(2) Use vigorous young toms, one for each 12 hens.
	(3) Toms too heavy	(3) Toms should weigh not more than twice as much as hens.
Eggs showing blood traces, or very small embryo when egg is opened	(1) High incubator temperature	(1) Watch incubator temperature.
	(2) Chilled eggs	(2) Keep eggs above freezing.
	(3) Breeding flock out of condition	(3) Proper care and feeding of breeding stock.
Dead Germs. Embryos well developed but dead before pipping shell	(1) Extremes of temperature; either too low or too high	(1) Keep incubator temperature adjusted, avoid overheating.
	(2) Lack of ventilation	(2) Provide fresh air in building, and through incubator.
	(3) Close inbreeding	(3) Avoid Brother-Sister matings.
Too many Help-Outs. Poults well formed but not getting out of shell	(1) Low humidity at hatching time	(1) Increase humidity to 88° on wet bulb when eggs pip.
	(2) Temperature too high in hatching trays	(2) Adjust ventilation so heaters are on very little while eggs are pipping.
Sticky or Drowned Poults. Eggs pipped, but poults smeared with albumen or drowned in egg liquids	(1) Eggs not properly dried down	(1) Keep wet bulb temperature at not over 82° during first 24 days.
	(2) Average incubation temperatures too low	(2) Hold temperatures at 99° on master thermometer.
Hatching too early	(1) Average temperature too high	(1) Hold at 99° throughout hatch.
Delayed hatching	(1) Average temperature too low	(1) Watch operating temperatures.
Rough navels. Blood on hatching trays	(1) Temperature too high during fourth week	(1) Avoid overheating from any cause.
Crippled and spraddled legs	(1) Extremes of either high or low temperature, especially during first week	(1) Operate at 99° temperature and 82° wet bulb during first 24 days and 99° temperature and 88° wet bulb during last 4 days.

BROODING METHODS.

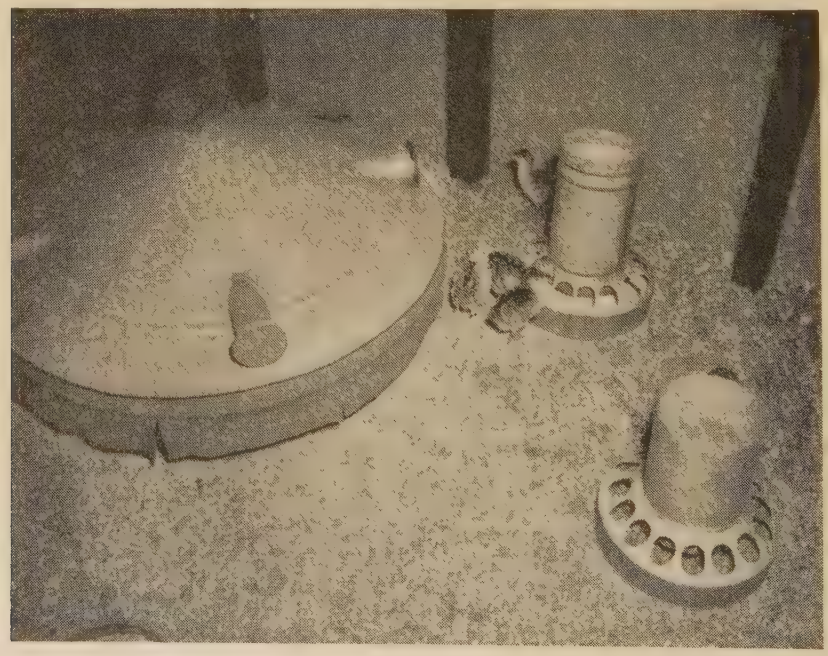
Natural Brooding.—If a relatively small number of poults are raised each year it is possible to use hens for brooding purposes. This method has certain advantages as the hen will look after the poults, shelter them from sudden rain storms and in most cases, protect them from attacks by pests. As a rule, the poults have more room than those raised under a brooder and do not develop the vices of feather and toe picking. Because they are raised under natural conditions and not in a heated brooder room the poults appear to be hardy and are more resistant to disease.

A hen which has been sitting on turkey eggs and has hatched out a number of poults can be give extra ones to make up her total to 12.

A convenient way to house the hen and her poults for the first seven to ten days is by means of a coop which is approximately 3 ft. by 3 ft. in area and has a slatted front. A small run is attached to the front of the coop to which the poults have access between the slats of the coop. The hen remains in the coop all the time. The coop and run should be moved to fresh grass each day. Young poults should not be allowed out on to wet grass until they are at least two weeks of age. Transfer the hen and poults to a larger run when the poults are about three weeks old. A shed equipped with perches should be provided as some poults will commence to perch as early as three weeks of age.

Alternative accommodation to the coop method is a yard enclosed with small mesh netting in which is a shed capable of holding the hen and poults confined for the first three or four days. If a large grassed yard is available poults can remain in it until they are two and one half months of age before going on range.

A point which must be stressed is that turkey poults cannot be raised successfully with chickens, and poults should not be raised on land which has been occupied by fowls because the cecal worms which inhabit the fowl's ceca produce eggs which contain the parasites which cause "black-head."



Poults can be successfully brooded under the usual type of chicken brooder. Note the types of feeders in use.

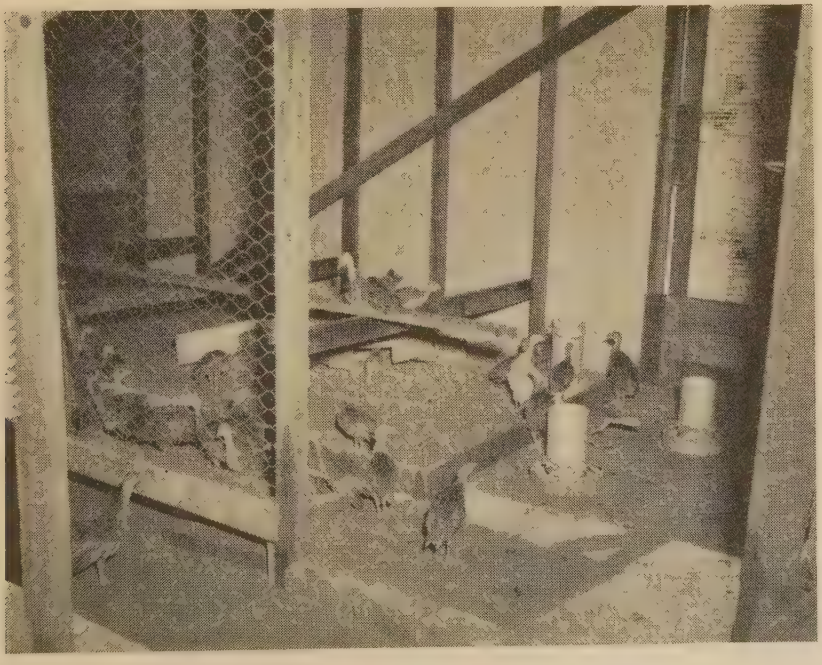
Artificial Brooding.—Artificial brooding normally follows the hatching of turkey eggs in an incubator, as it is unlikely that broody hens would be available to brood a large number of poults. Artificial brooding allows a large number of poults to be started at one time which results in a saving of time and labour and a more even flock at marketing time.

Brooder houses and brooders similar to those used in chicken brooding are quite satisfactory, but poults are more difficult to brood than chickens. Brooder management is similar to that used for chickens but with adjustments made to suit poults.

It is usual to allow 10 to 12 sq. inches of floor space per poult under the brooder and one sq. foot of brooder house floor space. Poults chill and die more easily than chickens so it is necessary to maintain adequate heat under the brooder. The best test of temperature is the behaviour of the poults. If the poults are comfortable they will be active and contented during the day time and at night will be found sleeping around the edge of the brooder. Poults are more subject to fright and crowding than chickens and for this reason it is more satisfactory to brood in small units of not over 100.

Poults will often take fright at any change in equipment and it is advisable to round off each corner of the brooder house with boards or other material to prevent the poults piling up in the corners.

The floor of the brooder house should be covered with dry sawdust to a depth of four inches which should be stirred every day to keep it in a dry condition, and more sawdust added when necessary.



A portion of the interior of a brooder house showing a perch in position above the brooder to induce early perching.

Wire or slatted wood platforms should be placed under the brooder and under all watering and feeding equipment. Poults require heat for approximately six weeks, the length of time depending on the time of the year and the weather conditions. Early in the brooding season the poults will require heat for a longer period than later in the season when warm conditions prevail.

Perches should be placed in the brooder house when the poults are about two weeks of age and by the time the poults leave the brooder house they should all be perching.

When the poults are ready to leave the brooder house they should be transferred to large grassed yards containing adequate shelter and equipped with perches, feeding and drinking utensils. If the yards are not laid down to permanent pastures it will be necessary to grow a green crop in preparation for the poults.

MANAGEMENT DURING THE REARING PERIOD.

There are three distinct systems of rearing turkeys:—

(1) Confinement rearing.

(2) Limited range or semi-confinement.

(3) Free range.

(1) *Confinement Rearing.*—Requires fairly costly equipment but gives better control of soil-borne diseases. It somewhat resembles the intensive system of poultry farming and has similar high capital costs. The equipment consists of a roosting shelter with a rearing platform attached. The platform is exposed to the weather and the turkeys can get into the sunlight. The floors of the shed and platform are built two to three feet above ground level and are made of wooden slats or heavy gauge wire netting to allow droppings to fall through and to give free circulation of air. Six to eight square feet of floor space per bird is required. This includes the roosting shelter and rearing platform. Three sides of the roosting portion are of solid build and feeders and watering equipment are attached to the walls so that they can be serviced from the outside. The sides and roof of the sun platform are ordinary two inch mesh poultry netting.

Feather picking is usually prevalent with this system of rearing and has to be controlled by special devices. The upper beak may be "tipped," that is, about one quarter of an inch of the tip of the beak is cut off with a knife. A pig ring may be inserted between the upper and lower beaks and into, but not through, the nostrils; or a patented "turkey bit" that holds the beak slightly open may be inserted. The confinement method of rearing should be considered where it is desired to rear a large number of turkeys on a small area of land.

Limited Range.—This type involves the use of roosting shelters in fenced yards which are large enough to provide most of the green feed. Many adaptations are possible within this system. A portion of a large paddock containing growing green feed can be enclosed by a portable fence; roosting shelters built on skids so they can be easily moved; and feeding and watering equipment made in such a manner that it can be moved every four or five days. An acre of land is required for 200 poults for approximately three to four weeks when the birds should be moved to an adjoining area of the paddock. If the vegetation recovers, the birds can return to the same section of the paddock for another period later in the season, but at least a month should elapse before their return. The watering and feeding equipment should be moved every few days to avoid the vegetation being destroyed and to prevent soil contamination.

Another adaptation of the limited range system of rearing is to build a permanent roosting shed, with a slatted or wire floor and attach to it two, three or four permanently fenced yards. The yards are all laid down to permanent pasture, or sown with green crops and are used in rotation.

Diagrams illustrating different plans for permanent yarding are shown in Fig. 2.

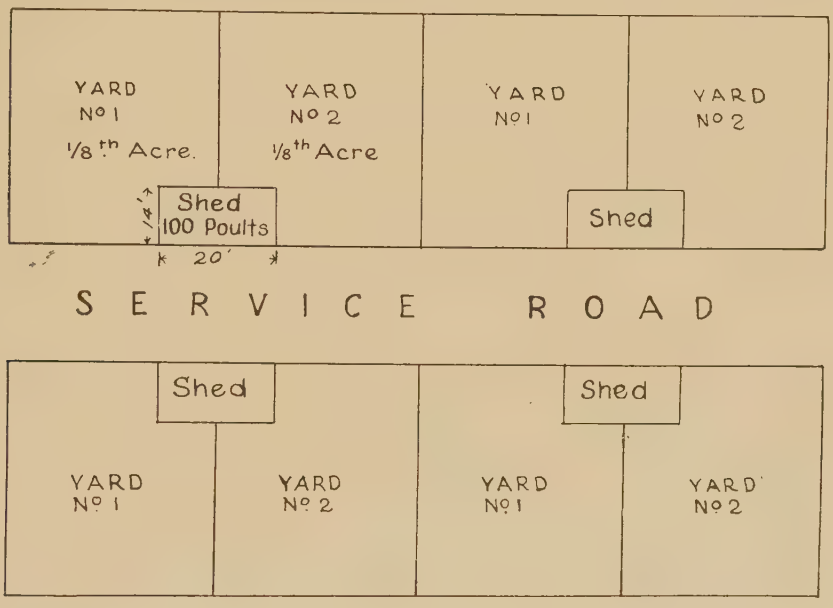


Fig. 2.

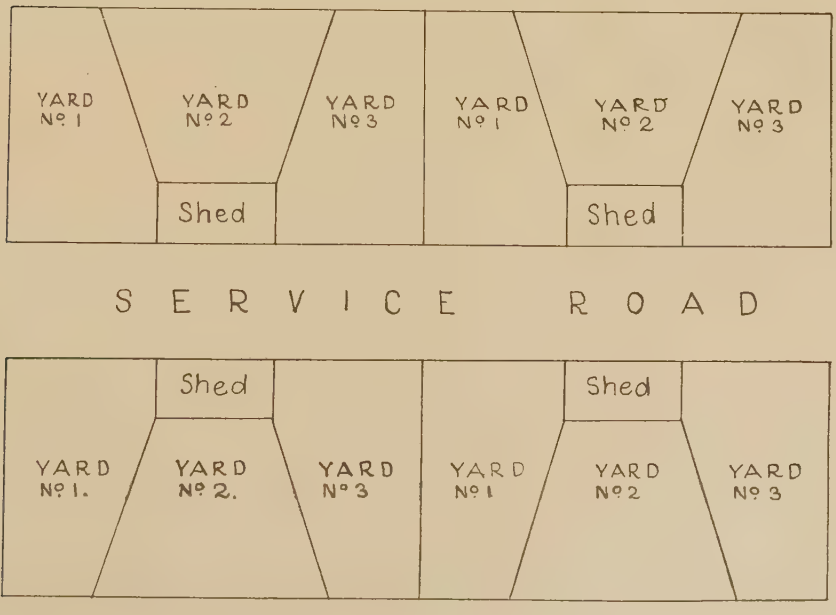


Fig. 2.

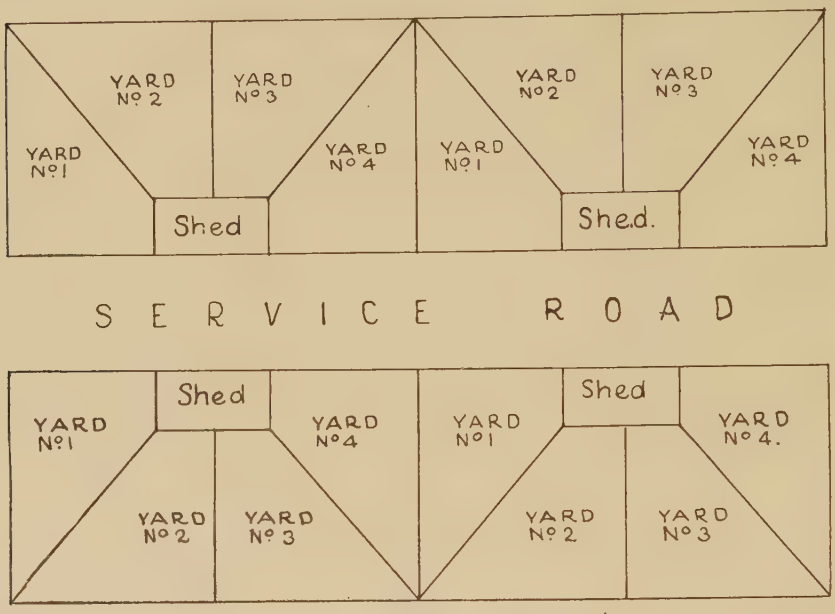


Fig. 2.
Diagrams illustrating the method of dividing one quarter of an acre of land into two, three or four yards. The multi-yard system enables 400 poults to be successfully reared on one acre.

When the rearing season is finished the shed and yards should remain empty until they are required the following season. The sheds should be thoroughly cleaned and sprayed, and if the yards are not laid down to permanent pasture they should be ploughed and cropped.

By careful management of the permanent yard system it is possible to rear 400 turkeys on one acre of land each year and maintain the pasture in good condition for the flocks. One shed with roosting facilities for 100 poults should be built on each quarter of an acre of land. Table 4 shows the advantages of the multi-yard system with regard to total yard space per bird:—

Table 4.
Square feet of Yard Space per Bird.
(100 Poults on one-quarter of an acre).

No. of Yards.	Period in each Yard.	Yard Space per Bird per Yard.	Total Yard Space per Bird per 4-week Period.
		sq. ft.	sq. ft.
2	4 weeks	54.5	54.5
3	2 weeks	36.3	72.6
4	9–10 days	27.2	81.6

In each case the poults return to the original yard after it has been rested for four weeks.

(3) *Free Range.*—In the wheat growing areas many poults are reared on open range but some restriction is usually provided to protect the birds and keep them from straying. Roosts are provided near the farm buildings and may be

protected by a surrounding fence of poultry netting. If the feeding and watering equipment is placed in the enclosure it will induce the birds to assemble for the evening feed and they can be shut in the enclosure for the night. When a flock of poults roam over a large area they find a proportion of their feed and limited feeding can be practised for part of the rearing period. The feed should be given to the birds in the evening for the reason stated previously. Allowing the birds to roam at will without feeding and protection is not a satisfactory method of rearing except under the most unusual conditions.

Poults can be reared successfully on free range by the use of a small-unit method. A simple shed is provided, sufficient in size to protect 100 poults until they are three and one half months old. Roosts are then built near the shed and a portable netting fence erected to enclose the shed, roosts, and feeding equipment. If feed and water are always available to the birds the units can be placed as close together as 250 yards depending on the amount of green feed growing on the land. The birds are shut up at night but can roam freely during the day.

SOME POINTS OF GENERAL MANAGEMENT.

Shade is necessary for turkeys of all ages during hot weather. Where sheds are in use they will give sufficient shade provided they are large enough and can be opened up to allow a good circulation of air. Birds on limited or free range can obtain ideal shade from scattered trees and scrub. A dense area of trees is not desirable as the sun cannot dry out and disinfect the soil, but a scarcity of shade causes the birds to crowd into a small area which is conducive to the development of disease and vicious habits such as feather picking.

Clipping the wings to prevent flying is undesirable but may be necessary to keep the birds confined to their yards. Any tom which is to be used for breeding purposes should not be clipped but the breeding hens can be clipped. The usual practice is to clip about one-half of the outer primary feathers of one wing but an alternative method is to clip the inner seven primaries. Clipping should be done when the poults are about 10 weeks of age and again when they are 16 to 20 weeks old.

The sex of a poult can be distinguished with reasonable accuracy at any age from day-old but as the young males do not interfere, to any extent, with the growing females there appears to be little advantage in separating the sexes during the rearing period. Day-old poults can be sexed by the examination of the portion of the sex organs which can be seen in the vent and the same technique is used to sex older poults. As mentioned under the heading "Selection of Breeders" it is desirable to examine the poults for rapid growth at approximately 16 weeks of age when the sex can be determined by the colour of the adult breast feathers which will be partly grown at that age. Females of the Bronze variety will have the breast feathers tipped with white, but those of the males will have dark tips. The body of the male appears to be more angular than the female and has the characteristic male shape. The hocks of the males are broad and flattened and those of the female are narrow and rounded. If the beard is present on the female it is usually smaller, shorter and finer than on the male.

Driving turkeys from place to place on the farm is the best method of transportation provided the birds have been wing clipped to prevent them flying. It involves less labour and is easier on the birds than crating and carting.

Feeding and Watering Equipment.—Poor results will be obtained if feeding and watering equipment are not correct. Poults do not take readily to feed and water and it is necessary to teach them to eat and drink. It is good practice to dip the beak of each poult in water and then in mash as they are put under the brooder. The first small feed troughs and water vessels should be placed close to and under the edge of the brooder.

These feeders can be open troughs, two inches wide with one inch high sides and should be numerous enough to provide two inches lineal feeding space per poult. After the first week larger feeders can be used and by the time the poults are four weeks of age the dry mash hopper as used for adult hens will provide satisfactory feeding arrangements.

To maintain the area used for feeding and watering in a sanitary condition it is most desirable to place all the equipment on wire covered platforms, and move to a new position at intervals of a few days.

FEEDING REQUIREMENTS.

The feeding of turkeys closely follows the principles recommended for the feeding of chickens, growing stock, and laying hens. Poults show greater relative gains in weight than chickens during the growing period which must be catered for by larger amounts of some of the nutrients in their diet. The objects in turkey nutrition are to produce marketable turkey meat as cheaply as possible or to produce the greatest number of hatchable eggs from the breeding stock. Referring to the first of these objectives the question immediately arises "What is the rate of growth and the feed requirements of poults?" Table 5, which was prepared by L. E. Cline, University of Nevada, shows the average live weights of individual birds at different ages, the amount of feed consumed and the approximate amounts of feed required to produce one pound of gain in weight. The figures are based on experiments in which the poults received an adequate ration of starting mash, growing mash, mixed grains and green feed. The table shows the uniform gains in weight and food consumption. In actual practice there will be variations but the average for a given period should approximate the figures given.

Points of special interest in the table are:—

(a) A six weeks old turkey weighs 2.45 lb. and has consumed 4.2 lb. of feed.

(b) A 12 weeks old turkey weighs 7.4 lb. and has consumed 18.3 lb. of feed.

(c) A 24 weeks old turkey weighs 18.1 lb. and has consumed 67.2 lb. of feed.

The average food consumption for 1 lb. gain in weight in the first six-week period is 1.7 lb.; in the second six-week it is 2.8 lb. and the average for the two periods taken together (first 12 weeks) is 2.47 lb. From the 13th to the 24th week (second 12 weeks period) the food intake shows a rapid increase and 1 lb. gain in weight is obtained from 4.58 lb. of feed.

TABLE 5.

Age in Weeks.	Average weight of toms and hens combined.	Gain in weight Pounds for Period.	Feed consumed each week.	Pounds total cumulative feed required.	Successive weekly or monthly feed required per pound of gain.
	(lb)	(lb.)	(lb)	(lb)	(lb)
Day old	.12	....	....	....	....
1st	.32	.2	.1	....	....
2nd	.58	.26	.3	.4	1.1
3rd	.93	.35	.5	.9	1.5
4th	1.4	.47	.7	1.6	1.4
Total	1.4	1.28	1.6	1.6*	1.33
5th	1.9	.50	1.1	2.7	2.2
6th	2.45	.55	1.5	4.2	2.6
7th	3.1	.65	1.8	6.0	2.8
8th	3.86	.76	2.3	8.3	2.9
Total	3.86	2.46	6.7	8.3*	2.6
9th	4.7	.84	2.3	10.6	2.7
10th	5.6	.9	2.4	13.0	2.7
11th	6.5	.9	2.6	15.6	2.9
12th	7.4	.9	2.7	18.3	3.0
Total	7.4	3.54	10.0	18.3*	2.8
13th	8.3	.9	3.0	21.3	3.2
14th	9.2	.9	3.3	24.6	3.4
15th	10.2	1.0	3.5	28.1	3.5
16th	11.2	1.0	3.7	31.8	3.7
Total	11.2	3.8	13.5	31.8*	3.4
17th	12.1	.9	3.9	35.7	4.2
18th	13.0	.9	4.2	39.9	4.6
19th	13.9	.9	4.2	44.1	4.6
20th	14.8	.9	4.3	48.4	5.1
Total	14.8	3.6	16.6	48.4*	4.6
21st	15.7	.9	4.4	52.8	5.1
22nd	16.5	.8	4.4	57.2	5.1
23rd	17.3	.8	4.8	62.0	5.7
24th	18.1	.8	5.2	67.2	6.2
Total	18.1	3.3	18.8	67.2*	5.5
25th	18.9	.8	5.6	72.8	6.8
26th	19.7	.8	6.1	78.9	7.5
27th	20.5	.8	6.4	85.3	8.0
28th	21.3	.8	6.8	92.1	8.5
Total	21.3	3.2	24.9	92.1*	7.7

* Average.

The different rates of growth in the periods a, b, and c, must be catered for and the proper nutrients must be included in a ration for young growing turkeys.

Recommended Nutrient Allowances for Turkeys.—As previously stated the nutritional requirements of turkeys closely follows those of the domestic fowl and as this subjest is adequately covered in the leaflet "Nutritional Requirements of the Domestic Fowl," by R. H. Morris, Department of Agriculture, Western Australia, no good purpose can be served by repeating his work. However, it is necessary to note where differences do occur between the nutritional requirements of hens and turkeys.

Protein Requirements.—Considerable research work has been done to determine the optimum protein content of feeds for growth in turkeys. Table 5 illustrates that as a young turkey increases in age its rate of growth gradually decreases and following along those lines most experiment stations recommend the use of high-protein rations during the first six weeks, but report that satisfactory growth and finish were obtained during later periods on a lower protein level. It would appear that economical gains in weight throughout the growing season can be obtained by feeding a ration of 24 per cent. protein level during the first six weeks, a 20 per cent. level during the second six weeks, followed by a 16 per cent. level until the birds are marketed. It will be noted that the relatively expensive high protein ration is fed when small amounts of feed are consumed and the cost of the ration is reduced as the quantity of feed is increased.

A satisfactory system of feeding is obtained by feeding a 24 per cent. protein starting mash as an all-mash ration for the first six weeks. At the commencement of the second six-week period the protein content of the mash is reduced to 20 per cent. and when the poults are 10 weeks of age the mash is supplemented by gradually increasing amounts of wheat as grain. By the end of the second six-week period the poults should be receiving a ration consisting of 60 parts of mash and 40 parts of wheat which will result in the total intake containing approximately 16 per cent. of protein.

Vitamin "A."—The following are the Vitamin "A" requirements for the various classes of stock:—

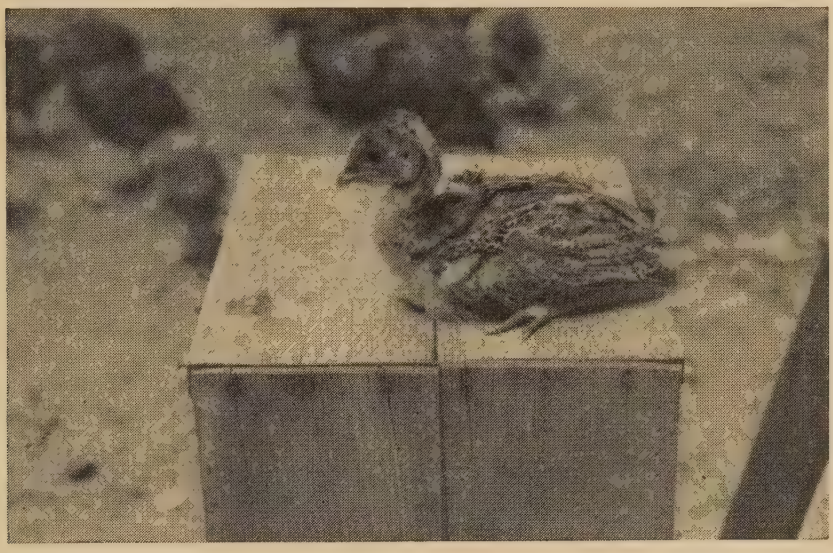
Chickens	2,000 Int. units of Vit. A per lb. of food.
Turkey poults	4,000 Int. units of Vit. A per lb. of food.
Breeding hens	4,720 Int. units of Vit. A per lb. of food.
Breeding turkeys ..	4,720 Int. units of Vit. A per lb. of food.

Young turkeys should be given twice the amount of Vitamin "A" per lb. of food than that required by chickens, but breeding hens and turkeys can be treated alike.

Vitamin "D."—Poults have a high Vitamin "D" requirement and will show a deficiency of Vitamin D sooner than chickens. Poults hatched from parent stock deficient in Vitamin D will show a rachitic condition within a few weeks.

The Vitamin D requirements of poultry per lb. of feed are:—

Chickens	180 A.O.A.C. Chick units.
Turkey poults	800 A.O.A.C. Chick units.
Breeding hens	450 A.O.A.C. Chick units.
Breeding turkeys	800 A.O.A.C. Chick units.



This poult is affected with Rickets (Vitamin D deficiency). Leg weakness, awkwardness of gait, softness of the beak and leg bones, and ruffled, unkempt feathers are characteristic of this condition.

Riboflavin.—The symptoms of riboflavin deficiency in poults are different from the symptoms shown by chickens. Poults develop a dermatitis consisting of incrustations at the corners of the mouth and thickened eyelids which tend to stick together. The birds are listless, unthrifty and the growth is very slow.

The recommended amounts of riboflavin which should be fed to poultry are:—

Chickens	290 gamma per 100 grammes of food.
Turkey poults ..	350 gamma per 100 grammes of food.
Breeding hens ..	230 gamma per 100 grammes of food.
Breeding turkeys ..	300 gamma per 100 grammes of food.

Hatchability is markedly affected when the riboflavin intake of breeding stock is below the figure stated.

Calcium and Phosphorus.—In order to prepare a starting mash containing 24 per cent. of protein it is necessary, under Western Australian feeding material supply conditions, to use fairly large quantities of meatmeal which makes it difficult to keep the ration sufficiently low in phosphorus for safety from a perosis standpoint. Good quality meatmeals containing 55 per cent. or more protein are usually relatively low in phosphorus and should be used if obtainable. A starting mash containing not more than two per cent. of calcium and one per cent. of phosphorus is considered to be safe but under favourable conditions (when the Vitamin "D" content of the feed is above 160 A.O.A.C. chick units) levels of 0.6 per cent. calcium and 0.6 per cent. phosphorus have given good results.

The level of calcium for breeding turkeys should be 2.25 per cent. and the phosphorous allowance is 0.75 per cent.

It must be emphasised that the above notes on nutrient allowances for turkeys must be read in conjunction with the leaflet previously mentioned.

METHODS OF FEEDING TURKEYS.

Rate of growth is not increased when young turkeys range over grassed paddocks or are given an ample supply of green feed, but there is usually a saving of from 10 to 20 per cent. in the total feed cost. Therefore when green feed or pasture is available it should be utilised. Turkeys can be successfully raised on an all dry mash system. The appropriate mash is placed in hoppers and is available to the birds at all times. Adequate feeding space should be provided; 50 ft. of hopper space per 100 turkeys after they are 12 weeks of age will be sufficient.

Complete control of the feeding can be maintained by this method:—The 24 per cent. protein starting mash is placed in the hoppers for the first 6 weeks period; it is then changed to a 20 per cent. mash for the second 6 weeks period, and from the 13th week to marketing the birds are given a 16 per cent. protein mash.

The texture of mashes fed to turkeys should not be too fine as very fine mashes tend to clog in the beak and cause sore mouths. Poults appear to grow and develop better when the ingredients of the mash are coarsely ground. The very fine textured mash is not readily eaten by poults and rapid growth cannot be expected if the food intake is insufficient.

The mash and grain system of feeding appears to be popular, with mash and grain kept in hoppers available to the turkeys all the time. In this system the grain is withheld until the birds are about 9 weeks of age when the mash contains 20 per cent. of protein and as the birds grow they tend to balance their diet. Research work shows that during the growing period poults will consume 40 to 50 per cent. of their total food as grain. The grain can be wheat or oats or both grains fed in separate hoppers. The ration given below could be fed as a starting mash for the first 6 weeks period but it must be noted that a high grade meatmeal must be used to keep down the phosphorus content of the mash.

Ingredient.	lbs.	Protein.	Calcium.	Phosphorus.
Bran	20	2.80	0.014	0.120
Wheatmeal	20	2.00	0.008	0.044
Pollard	20	2.70	0.010	0.064
Gristed Oats	10	0.90	0.005	0.022
Meatmeal (60% protein) ..	22	13.20	1.100	0.660
Dried Buttermilk ..	10	3.20	0.130	0.080
Oyster Flour	2	—	0.760	—
	104	24.80	2.027	0.990
	100	23.84	1.949	0.952

At the end of the first 6 weeks period the protein content of the mash can be reduced to approximately 20 per cent. by reducing the meatmeal by 8 lb., that is, to 14 lb. and the dried buttermilk can be reduced from 10 to 4 lb.

The content of the mash would then be:—Protein 20.09 per cent. Calcium 1.721 per cent. and Phosphorus .780 per cent. which can be considered as being within safe limits.

When grain feeding is introduced on the basis of 40 per cent. of the total feed it would be necessary to add 3 lb. of bonemeal and 2 lb. of oyster flour to each 100 lb. of the mash to maintain the level of calcium and phosphorus.

MARKETING.

No definite date can be fixed for marketing turkeys, but they should be held until they are in a fit condition to market. Well grown turkeys seven to eight months old should be in excellent condition for dressing, without feeding a fattening ration, provided they have been reared on a well balanced growing ration. The turkey grower, having reserved the birds he requires for breeding, should examine the remainder of the flock when they are seven months months old and market those birds which are in prime condition. The characteristics of a turkey which would be graded as "prime" are as follows:—

(1) A wide breast carrying plenty of firm flesh. The fleshing must not taper off markedly towards the rear of the keel.

(2) It must be well finished, that is, carry a fair amount of fat in the skin. To determine this it is necessary to examine the skin at a point halfway down the side of the breast just above the front point of the keel and in the sparsely feathered area between the two feather tracts of the breast. A fold of the skin, taken between the thumb and forefinger of each hand, should appear creamy and be approximately one eighth of an inch in thickness.

(3) The feathering on the underside of the wing, on the breast and on the drumsticks should be examined. Short pinfeathers cannot be picked clean and with dark coloured plumage part of the feather pigment may remain in the skin. Long pinfeather can be removed fairly easily and will not discolour the carcass. A prime bird should have only a moderate number of long pinfeathers and a few short ones, practically none on the breast.

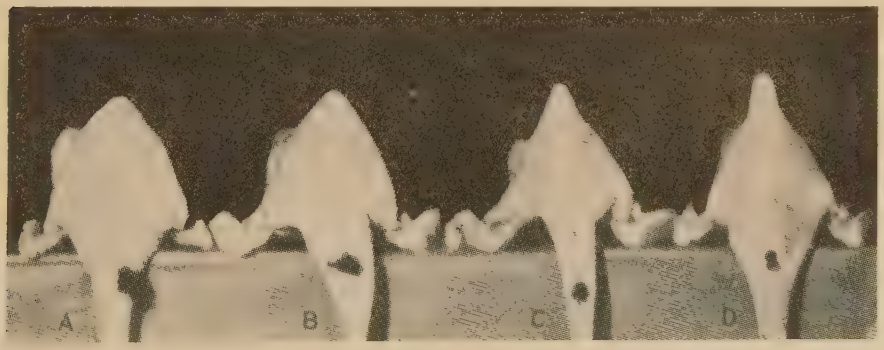


Fig. 3.
"A" and "B" are well-fleshed carcases which would be graded "prime." "C" and "D" are poorly fleshed and below normal.
[S. J. Marsden, Bureau of Animal Industry, U.S. Department of Agriculture, 1940.]

(4) The flesh on the drumsticks should be well rounded and of normal size. The fleshing should extend well down towards the hock.

(5) No deformities, such as crooked breast, pendulous crop, etc., should be present.

The above requirements are placed rather high in order to give the breeder an ideal to endeavour to obtain. In a well managed turkey flock there are many variations from the normal in breast and leg fleshing. Those birds which are narrow in the breast and are deficient in breast and leg fleshing should be marketed separately from the well fleshed birds as they could not be graded "prime" and their value per lb. would be relatively low.

Care must be taken in the catching, crating and transport to market of the birds as abrasions and bruises lower their value.

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Grateful acknowledgment is given to the Chief Draftsman, Lands and Surveys Department for completing the designs from drawings submitted by the author.

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CONTROL OF CLEARING IN WHEATBELT DISTRICTS.

G. H. Burvill, Commissioner of Soil Conservation.

BY regulations gazetted on the 13th October, 1950, under the Soil Conservation Act, 1945, no clearing of land in certain wheat belt and stock districts is now allowed without a permit from the Commissioner of Soil Conservation. These regulations have been brought in after the proclamation of two soil conservation districts covering the area concerned. The North-Eastern Soil Conservation District embraces the Road Board areas of Koorda, Mt. Marshall, Mukinbudin, Westonia and Yilgarn, while the Eastern Soil Conservation District includes the Road Board areas of Wyalkatchem, Kununoppin-Trayning, Nungarin, Kellerberrin, Merredin, Bruce Rock, Narembeen, Kondinin and the eastern part of the Kulin Road District (see "Government Gazette," 21st April, 1950). Within these two districts it is now required that any landholder wishing to clear land shall give three months' notice in writing of his wish to the Commissioner of Soil Conservation, Department of Agriculture, Perth. Clearing without a written permit is not allowed. Forms of notice and application for permit to clear land are available from Road Board offices within these districts or from the Commissioner of Soil Conservation, Department of Agriculture, Perth. A penalty of £50 is provided for failure to comply with the regulations which are printed in full at the end of this article.

Belts of timber along roads and fences make for a more attractive countryside as seen in this picture of salmon gum country between Gnowangerup and Borden. There is also shade for stock and protection of fences and roads from any soil drift.

(Photo. W.A. Govt. Printer.)

Arrangements will be made to inspect the areas proposed for clearing and to issue permits for the clearing of areas where it is considered wise and safe, especially taking into account the need for soil conservation and soil erosion control. *The regulations do not aim to stop or greatly restrict clearing, except where it is believed that clearing could cause a difficult soil erosion problem.*

Throughout the areas of the Eastern and North-Eastern Soil Conservation Districts clearing of land, especially scrub plain and mallee types, is taking place under the incentive of good prices for wheat, oats and wool. Fortunately, a large number of wheat belt farmers are aware of the dangers of soil erosion and they believe that some control should be exercised over the clearing of land so that, if possible, the bad effects of soil erosion by both wind and water may be avoided. There are in these districts many instances where roads and fences have been rendered more or less useless by drifting soil. In most cases this would have been avoided if a strip of natural vegetation had been allowed to remain inside fence lines and adjacent to roads and if suitable farming methods for the type of country had been adopted.

Control of Clearing will not, by itself, Prevent Soil Erosion.

It is important to emphasize that control of clearing cannot be expected by itself to prevent soil erosion. The way in which land is farmed or grazed over the broad acres mainly determines whether soil erosion by wind or water will occur. Full attention to all aspects of farming practice on any area of land is necessary if soil conservation is to be effective.

Belts of scrub and mallee along boundaries and fences can provide shelter for stock and protect fences and roads from any drift which occurs. In this picture drift sand from the cleared area to the left has formed mounds extending about half a chain into the natural scrub. Careful farming of cleared land is needed to reduce such drifts.

(Photo. G. H. Burvill.)

Wind erosion from yellow sand plain has partly buried two fences and blocked a road at Dowerin. The planting of cereal rye shown here has checked the drift and the road has been made passable again. If a strip of scrub had been left uncleared the drift may not have buried the road. Different farming methods could have greatly reduced the amount of drift.

(Photo. G. H. Burvill.)

Over-grazing and over-cultivation are two major causes of soil erosion, especially on light lands. Farmers clearing light lands should not aim to grow more than two grain crops before turning the area over to grazing for a period of years. Wherever the rainfall will allow, improved pastures of early subterranean clover should be developed. Wimmera rye grass may also be introduced. Under lower rainfalls, say, 11 to 14 inches, annual volunteer pastures of cape weed, brome grass and silver grass may be improved with scratched in oats, barley or cereal rye for grazing. Any fallowing should be done in a manner which avoids leaving a bare flat surface. Spring cultivation of fallow should not be carried out on light land and the grazing of stock on fallow should be reduced to a minimum. Areas which are already drifting or show a tendency to do so should be planted with cereal rye after the opening rains of the season and should be carefully grazed.

It is hoped that the control of clearing together with a more widespread appreciation of the need for careful and suitable farming methods will reduce soil erosion in these districts where the controls now operate.

SOIL CONSERVATION ACT, 1945.

Department of Agriculture,
Perth, 10th October, 1950.

Ex. Co. No. 2223.

HIS Excellency the Governor, in Executive Council, acting under the provisions of section 22 of the Soil Conservation Act, 1945, has been pleased to make regulations under and for the purposes of the said Act, in the manner set forth in the schedule hereunder.

A. McK. CLARK,
Acting Director of Agriculture.

Schedule.

1. These regulations may be cited as the Soil Conservation Act Regulations.

2. These regulations apply to the North-Eastern Soil Conservation District and the Eastern Soil Conservation District.

3. No person shall within the expiration of three months after he has given to the Commissioner notice in writing of his intention so to do and without the written permission of the Commissioner—

(a) remove from any uncleared land in any of the Soil Conservation Districts mentioned in regulation 2 of these regulations the whole or any part of any tree, shrub, grass or other plant whatever; or

(b) injure or destroy any tree, shrub, grass or other plant whatever on any uncleared land in any such Conservation District.

Provided that this regulation shall not apply to the clearing of areas of two acres or less for other than agricultural or pastoral purposes, or the cutting of trees for firewood, posts or timber.

4. The notice to and application for the permission of the Commissioner as required by regulation 3 shall be made on the form No. 1 in the Appendix to these regualtions.

5. In these regulations "uncleared land" includes land whereon there exists—

(a) the whole or substantially the whole of the native vegetation;

(b) the whole or substantially the whole of the native vegetation after the cutting of trees for firewood, posts, or timber;

(c) the whole or substantially the whole of the vegetation remaining or regrown after the burning of standing native vegetation;

(d) the natural regrowth of seedlings, suckers, coppice and shrubs on previously cleared areas which have not been cultivated within five years prior to the date of the notice to and application for the permit required in accordance with regulation 3.

6. Any person who without lawful excuse acts in contravention of or fails to comply in any respect with any of these regulations, or any direction, requirements, prohibition, condition, limitation or restriction given or imposed under these regulations shall be guilty of an offence.

Penalty—Fifty pounds.

Approved by His Excellency the Governor in Executive Council, 10th October, 1950.

R. H. DOIG,
Clerk of the Council.

Appendix.

Form No. 1.

SOIL CONSERVATION ACT, 1945.

(Regulation 4.)

Notice and Application for Permit to Clear Land.

To the Commissioner of Soil Conservation,

Department of Agriculture, Perth.

I,.....(full name, block letters please),

of.....(postal address), wish to clear

about.....acres of land on Location Number.....(see sketch

below in the.....Land District.....miles.....

(North, South, East or West) of.....siding or townsite,

commencing on or about.....(three months' notice required).

I am the owner/Crown lessee (cross out words not needed) of this land and I apply for a permit to clear that portion shown on the sketch below by the destruction of trees, shrubs, grasses or other plants whatever on such land.

Signed..... Date.....

(Usual signature of applicant.)

Applicant to draw sketch below to show approximate position of the land to be cleared. Roads and numbers of adjoining locations are to be shown where possible.

Space for sketch.

DAIRY HERD IMPROVEMENT SCHEME.

GRADE HERD RECORDING.

M. Cullity, Superintendent of Dairying.

IN presenting the report for grade herd recording for the year 1949-50, the occasion must be taken of again referring to the importance of a careful study of recording data as a basis for increasing the average performance of herds. Testing in itself is not sufficient. The farmer must be prepared to study the records which are provided and to carry out those measures which are practicable to increase the performance of the various animals. In some cases it will mean the culling of the herd; in others it will mean the stepping up of hand-feeding at periods of the year; most important of all however, the performance of the herd will depend on the control of pasture, conservation of fodder and the use of this fodder at the appropriate periods of the year.

It has been said previously by the writer that the average performance of all cows in Western Australia could be lifted by at least 50 lb. of fat per head if it were possible to lift the plane of feeding to the inherited capacity of the animals.

The figures which will be given hereunder for the performances of the various herds during the year, are somewhat disappointing as there is a substantial decline in average yields to report. The actual performance for the year, 196 lb. butterfat, is 18 lb. lower than that of the previous year. However, there has been a substantial improvement in the number of cows under test, from 12,692 to 15,309. This in itself would lead one to expect that there would be a fall in average yield for the year, as past experience has shown that in the first year of testing most herds and most units have averaged somewhere in the vicinity of 180 lb. of butterfat. The fact that the performance for the past year has been so much lower than the previous one, therefore cannot be taken as an indication of a fall in efficiency.

During the year under discussion, there was experienced a particularly long dry period from December until April. This was drier than normal and had its effect on the performances of those cows which were in production at the period, and no doubt led to the drying off of many herds which otherwise may have continued in milk for a short portion of the period if not for the whole period. Thus the combination of a large number of new cows and the very dry summer can be taken together as the main explanation of the decline in average production.

The fall cannot be taken as a sign of a lack of keenness on the part of farmers, as the number of applications for testing not only from individual owners but from districts, is continuing so steadily that it is a certain sign that farmers are anxious to obtain the necessary help to improve the production of their herds.

Extent of Testing.

In Table 1 is given a comparison of the position since the commencement of Grade Herd Recording in 1933-34. It will be noticed that the number of cows in the dairying districts have increased from 74,900 in 1933-34 to 106,617 in 1949-50. The number of cows under test is the highest ever recorded, 15,309.

It also represents the highest percentage of the cows in the dairying districts 14.4 per cent. The same percentage of cows were under test in 1938-39 but the number actually in the herds on that occasion, was some 3,000 less than during the past year. The number of herds tested was also the highest on record, 557 separate herds being visited by the recorders at the regular monthly intervals. The number of units was also the highest, 27, the previous greatest being in the preceding year at 25. Pre-war, the greatest number of units was 23. The average number of herds per unit was 21, so that the number of herds in each unit is being kept at the maximum. The number of cows per unit was 567 which was as high as in all others except one year, when 569 cows was the average per unit in 1946-47. The average size of the herds was 27. There has been little variation in the size since the first year of testing as the number of cows has varied from 23 to 29.

Table 1.

Year.	Cows in Dairying Areas.	Cows Under Test.		No. of Herds Tested.	No. of Units.	Average No. of Herds per Unit.	Number of Cows per Unit.	Average No. of Cows per Herd.
		Number.	Per cent.					
1933–34	74,900	4,308	5.7	159	8	20	538	26
1934–35	77,328	4,088	5.2	142	8	18	501	29
1935–36	76,745	4,590	5.9	178	9	20	510	26
1936–37	78,547	9,115	11.6	356	18	20	506	26
1937–38	82,893	10,033	12.1	393	19	21	528	26
1938–39	85,300	12,368	14.4	485	23	21	538	26
1939–40	90,169	11,479	12.7	465	23	20	499	26
1940–41	94,891	9,609	10.1	409	20	20	480	23
1941–42	98,850	7,081	7.1	301	16	19	443	24
1946–47	102,256	11,944	11.6	432	21	21	569	28
1947–48	104,193	12,395	11·8	460	24	19	516	27
1948–49	107,223	12,692	11.8	477	25	19	508	27
1949–50	106,617	15,309	14.4	557	27	21	567	27

The general picture provided by the foregoing figures is relatively pleasing, as it indicates, as has been suggested earlier, that farmers generally are keen to submit their herds for testing and that they are appreciative of the form in which the data has been presented to them in previous years. An effort has been made to change the emphasis in Grade Herd Recording from merely a matter of locating the unprofitable cow, to a basis on which the unprofitable cow can still be culled but, a tremendous amount of data is acquired showing the effects of general management, or various aspects of management upon yields. This information is being extended year by year and is proving of very great benefit.

Average Yields.

In Table 2 is given the average performance of all cows under test each year since the first year of testing. As has been indicated earlier, the number of cows tested is the greatest on record and the average has fallen from 214.7 in 1948-49 to 196.9 in 1949-50. The average milk production was 453 gallons, and an average test of 4.35. The average test was lower than in the two preceding years, when 4.47 and 4.46 were recorded.

Table 2.

AVERAGE PRODUCTION PER COW, 1933–49.

Year.	Number of Cows.	Milk.	Test.	Butterfat.
		gals.	%	lb.
1933–34	4,308	415	4.35	180.60
1937–38	10,033	486	4.59	223.10
1938–39	12,368	487	4.48	218.70
1939–40	11,479	462	4.51	208.30
1940–41	9,609	447	4.45	199.00
1941–42 .... {	7,081	496	4.52	224.02
	*5,695	502	4.61	231.78
1946–47	11,944	420	4.36	181.00
1947–48	12,395	478	4.46	213.30
1948–49	12,692	481	4.47	214.71
1949–50	15,309	453	4.35	196.90

*Excludes four units tested for from six to seven months only.

Value of Testing Continuously.

Table 3 shows the comparison of the yields according to the number of years of continuous testing. Particular attention is directed to this table, as it is considered one of the most clear illustrations of the benefit of continuous testing. The figures are shown for each of the four years since recording was re-commenced after the war, and include the average performances of the herds that have been tested for one, two, three and four times. For example:—In 1947-48 those cows tested for the first time averaged 199.2 lb., while those tested in the second year averaged 223.8 lb. In 1948-49 those tested for the first time averaged 197.6 lb., those for the second time 216.4 and those for the third time 224 lb. butterfat. In the last year, those tested for the first time averaged 183.6 lb., for the second time 199.5 lb., for the third time 203.3 lb. and for the fourth time 216.4 lb. There could be no clearer demonstration of the value of keeping herds under continuous test. If we look at the last year's figures only, it will be seen the advantage to those who have been testing four years against those submitting their herds for the first time was over 31 lb. butterfat which, at the current price of 3s. is equivalent to £4 10s. per cow for the lactation period. The annual cost of testing is only 3s. 6d. plus the cost of meals provided for the Recorder on his monthly visit to the farm.

Table 3.

PRODUCTION OF HERDS ACCORDING TO THE NUMBER OF YEARS OF CONTINUOUS TESTING.

Year.	First Time.			Second Time.			Third Time.			Fourth Time.			Total.		
	No. of Herds.	No. of Cows.	Av. Prod.	No. of Herds.	No. of Cows.	Av. Prod.	No. of Herds.	No. of Cows.	Av. Prod.	No. of Herds.	No. of Cows.	Av. Prod.	No. of Herds.	No. of Cows.	Av. Prod.
1946–47	432	11,944	181·0	....	....	....	....	....	....	....	....	....	432	11,944	181·00
1947–48	210	5,411	199·2	254	6,923	223·8	....	....	....	....	....	....	464	12,334	213·30
1948–49	162	4,078	197·6	131	3,516	216·4	175	4,857	224·0	....	....	....	468	12,451	214·71
1949–50	255	6,720	183·6	98	2,645	199·5	92	2,577	203·3	112	3,367	216·4	557	15,309	196·90

If we make a comparison between those tested three years and four years, we find that the latter have an advantage of 11 lb. butterfat which, at the current price, is equivalent to 33s. providing a still more than substantial margin over cost incurred in having the herd tested.

The benefits which farmers gain through continuous testing are not only in having a regular check on the performance of their cows and being able to determine those which are consistent in production, but also on the lines, or families in their herds which are the most consistent. They also have a continuous check upon the management of their farms. They are able to assess from year to year the value of various changes in their management, the effect of feeding hay at a certain period, the control of grazing and the value of their summer fodder.

There is no doubt at all that those who have continued under test for each year have found it of very great benefit.

Table 4.

PRODUCTION PER COW IN EACH UNIT.

(Listed in order of Merit).

Unit.	No. of Herds.	No. of Cows.	*Per cent. of Heifers.	Milk Average	Test.	Butterfat Average (lb.).		
						1949–50.	1948–49.	1947–48.
				lb.	%			
Cowaramup	21	946	31.9	5,420	4.5	243.2	257.8	244.2
Albany, West	21	455	44.8	5,078	4.4	221.6	....	....
Nannup....	21	656	34.1	4,914	4.4	216.0	218.3	197.7
Brunswick	17	607	49.3	4,689	4.6	215.2	225.2	210.6
Ruabon	22	772	35.1	5,362	4.0	213.9	208.9	207.1
Donnybrook	19	450	31.8	4,545	4.7	212.6	225.2	219.0
Balingup	21	581	35.8	4,623	4.6	211.4	216.5	213.3
Harvey	20	826	41.5	4,935	4.3	210.9	222.9	255.0
Northcliffe	22	587	28.4	4,395	4.7	207.3	219.6	177.0
Pinjarra	18	536	40.3	5,020	4.1	206.6	212.1	227.2
Forest Grove	20	484	37.8	4,451	4.6	205.8	224.8	195.6
Capel	21	946	32.5	5,341	3.8	205.2	....	....
Margaret River	19	415	31.1	4,672	4.2	197.9	228.7	196.0
Wilga	23	488	40.2	4,491	4.3	193.8	172.8	205.1
Waroona	20	589	23.6	4,288	4.5	191.7	230.7	238.6
Rosa Brook	18	448	46.2	4,076	4.6	190.6	255.7	228.7
Walpole	22	503	30.0	4,087	4.6	189.1	....	....
Mt. Barker	20	656	58.2	4,195	4.5	188.0	197.6	223.8
Armadale	21	799	25.9	4,558	4.1	186.1	206.2	....
Vasse	19	603	44.3	4,274	4.3	183.1	189.9	189.1
Scotsdale	25	551	51.9	3,959	4.6	181.5	210.8	201.4
Bridgetown	24	609	27.3	4,033	4.5	180.8	182.8	213.0
Albany	20	383	45.7	3,878	4.6	178.4	215.2	220.7
Pemberton	22	505	33.3	4,116	4.2	171.0	207.4	210.6
Denmark	23	429	35.2	3,736	4.5	169.6	251.6	216.3
Karridale	22	466	56.7	3,360	4.3	145.3	....	....

* Heifers include all cows 3 years' old or less.

Results of the Units.

In Table 4 the performances of the various units are shown. Cowaramup proved to be the leading unit for the year having 946 cows with an average of 542 gallons, 4.5 per cent. test and 243.2 lb. butterfat. This was lower than the yield in 1948-49 when 257.8 lb. were recorded, and very slightly lower than in 1947-48 when 244.2 lb. were recorded.

The next unit in order of merit was West Albany, where 455 cows averaged 507 gallons, a 4.4 test and 221.6 lb. of butterfat.

Nannup was third with 216 lb. of butterfat, slightly lower than in the previous year, and higher than in 1947-48.

The three lowest units were Pemberton, Denmark and Karridale, where the averages were 171 lb., 169 lb. and 145 lb. These poor results are somewhat disappointing, particularly in the case of Denmark and Pemberton, where testing has continued for some years. Karridale is a new unit and, as is usual, the results are lower than the average of the others who have been under test for some time.

Herds Grouped According to Production.

Table 5 shows the herds grouped according to production. A study of this table will indicate that there has been a steady tendency for a greater number of cows to achieve higher yields. These good yields have been nullified however, in the general result by there being too great a number which are very poor producers. During the last year however, there was a decline in the number which reached the level of over 300 lb. and it represented only 1.8 per cent. of those under test. Unfortunately, the number producing less than 200 lb. of fat was very high.

TABLE 5.

HERDS GROUPED ACCORDING TO PRODUCTION.

Butterfat per head (lb.).

Year.	Over 400.	350–400.	300–350.	250–300.	200–250.	150–200.	100–150.	Under 100.
	%	%	%	%	%	%	%	%
1933–34	....	....	1.3	3.9	20.3	53.6	18.3	2.6
1939–40	....	....	3.2	18.5	34.6	32.9	9.7	1.1
1940–41	....	....	1.5	13.9	31.8	39.4	12.7	0.8
1941–42	....	1.6	8.2	21.9	42.1	21.5	4.7	....
1946–47	....	....	1.2	7.9	25.2	39.9	22.4	3.4
1947–48	....	0.6	3.9	18.1	38.8	27.6	10.2	0.8
1948–49	0.6	0.8	5.2	17.6	38.7	28.7	7.3	0.8
1949–50	....	....	1.8	10.2	29.1	38.6	17.1	3.2

Cows Grouped According to Production.

Table 6 shows a similar position for the cows grouped according to age and production.

Over 45 per cent. of the mature cows produced less than 245 lb. of butterfat, while over 65 per cent. of the heifers failed to reach this level.

TABLE 6.

COWS GROUPED ACCORDING TO AGE AND PRODUCTION.

(All Cows tested 90 days or more).

Year.	Age.	Over 600.	500–600.	400–500.	300–400.	200–300.	150–200.	100–150.	Under 100	Total Cows.
		%	%	%	%	%	%	%	%	
1942	Mature	0·02	0·30	2·40	21·80	46·40	17·40	8·70	3·00	4,287
1947	Mature	....	0·07	0·68	7·97	35·16	26·37	20·13	9·62	8,711
1948	Mature	0·01	0 10	1·85	14·84	42·11	21·21	13·67	6·21	8,999
1949	Mature	0·03	0·19	2·32	15·42	40·64	21·89	13·14	6·34	8,713
1950	Mature	....	0·05	1·25	12·14	40·66	22·46	15·56	7·88	9,323
1942	Heifers	....	0·05	0·20	5·80	36·80	27·50	20·20	9·40	1,978
1947	Heifers	....	....	0·10	3·20	25·50	29·40	25·80	16·00	3,232
1948	Heifers	....	0·05	0·21	7·14	36·42	26·58	19·16	10·44	3,396
1949	Heifers	....	0·02	0·43	6·98	38·80	26·26	18·58	8·99	3,979
1950	Heifers	....	....	0·15	4·61	29·65	28·32	23·91	13·36	5,773

Average for Cows Completing 273-Day Lactation.

In Table 7 are shown the averages for the cows in each unit which were milked for a full lactation period of 273 days. The averages quoted in Table 4 were for all cows tested for 90 days and over. These include a number of animals which did not complete a full 273 days, but were dried off or sold in a lesser period.

Table 7.

273-DAY LACTATION.

In order of Merit.

Unit	No. of Cows.	Average Milk.	Butterfat.	Average Butterfat
		lb.	%	lb.
Donnybrook	49	5,443	4.94	318.0
Northcliffe	104	6,236	4.79	298.5
Armadale	136	7,224	4.08	294.8
Brunswick	130	6,051	4.86	293.9
Cowaramup	184	6,383	4.57	291.4
Capel	92	7,254	3.95	286.8
Harvey	192	6,619	4.33	286.5
Albany, West	106	6,303	4.53	285.4
Nannup	109	6,193	4.58	283.8
Ruabon	174	6,887	4.08	281.4
Bridgetown	60	6,018	4.58	275.4
Waroona	90	5,772	4.74	273.4
Vasse	67	6,070	4.48	272.0
Wilga	53	5,835	4.60	268.6
Pinjarra	82	6,076	4.38	267.0
Albany	70	5,513	4.79	264.0
Walpole	108	5,514	4.70	259.3
Forest Grove	107	6,155	4.11	252.9
Rosa Brook	49	4,947	5.10	252.3
Denmark	26	5,226	4.83	252.2
Scotsdale	100	5,360	4.69	251.7
Margaret River	74	5,632	4.38	246.8
Mt. Barker	90	5,829	4.23	246.7
Balingup	143	5,530	4.44	245.8
Metricup	29	5,362	4.55	244.0
Karridale	41	4,889	4.72	230.9
Pemberton	106	4,781	4.75	227.3
	2,571	5,691	4.78	272.1

The average production of all cows which completed 273 days, was 272 lb. or 75 lb. higher than the average for all cows included in the average. The table shows the position in each unit and also gives the number of cows which did complete the full lactation. The lactation periods according to unit and month of calving are shown in Table 8. The percentage of cows completing test over 273 days was 16.8 per cent. The percentage which completed test, i.e., 273 days, or dried off in a shorter period was 72.3 per cent. Those which did not complete 273 days averaged 181.7 lb. or 90 lb. less than those which completed the full lactation period.

The object in setting out this information is to emphasise not only to those in the recording scheme, but to all dairy farmers, the importance of seeing that the cows milk for as long a period as possible. At one time a common question used to be, "how long should the rest period be between two lactations?" and

the usual answer was that it should be at least two months; that a shorter rest period was undesirable as it imposed too great a strain upon the constitution of the cow. Nowadays that question is rarely asked. It is because so very few of our cows are kept in milk for a full lactation.

Length of Lactation.

Data for the year under discussion confirms the data published in the report for 1948-49 showing that the average lactation period in Western Australia in this Grade Herd Recording scheme was 6.9 months only. In other words, the rest period was 5.1 months. This is due to some extent to the policy adopted by many farmers in bringing in their cows in the autumn, thus coinciding the lactation period with the period of green pasture. Unfortunately, advocacy of this policy has implanted the idea in the minds of many farmers that by doing this they can turn the whole of their herd out in the early summer months, and so give a slack period when they can take a holiday. There is no doubt that the farmer earns his holiday, and no one can suggest any opposition to his organising his work so that this could be attained. It is suggested however, that endeavours should be made to keep the cows in production for a long period, as this will give greater financial returns to the farmer at little cost other than effort on his part, and so put him in a better position to enjoy the holiday when he arranges it.

TABLE 8.

PRODUCTION OF COWS ACCORDING TO MONTH OF CALVING.

	1949–50.		1936–42 and 1946–50 (8 years.)	
	Number of Lactations.	Average Butterfat.	Number of Lactations.	Average Butterfat.
		lb.		lb.
January	110	227	1,101	177.8
February	196	209	1,785	194.9
March	643	232	5,535	225.5
April	2,236	230	13,880	237.9
May	2,480	228	15,425	234.2
June	2,046	216	14,783	227.7
July	1,721	205	13,341	219.4
August	1,359	190	8,264	192.2
September	841	166	4,382	170.4
October	425	165	2,384	160.7
November	178	178	1,146	167.3
December	120	176	860	138.6
Totals	12,355	211.2	82,886	217.5

Influence on Yields of Month of Calving.

Another most important form of data which has been procured now for many years in Grade Herd Recording, is the information showing production according to the month of calving. The data has now been collected since 1936 and represents 82,886 lactations. It shows, as has been pointed out in previous reports, that the highest averages are obtained by those cows which calve in the months of March, April, May, June and July, and that the lowest production is obtained from those cows calving in September, October and November.

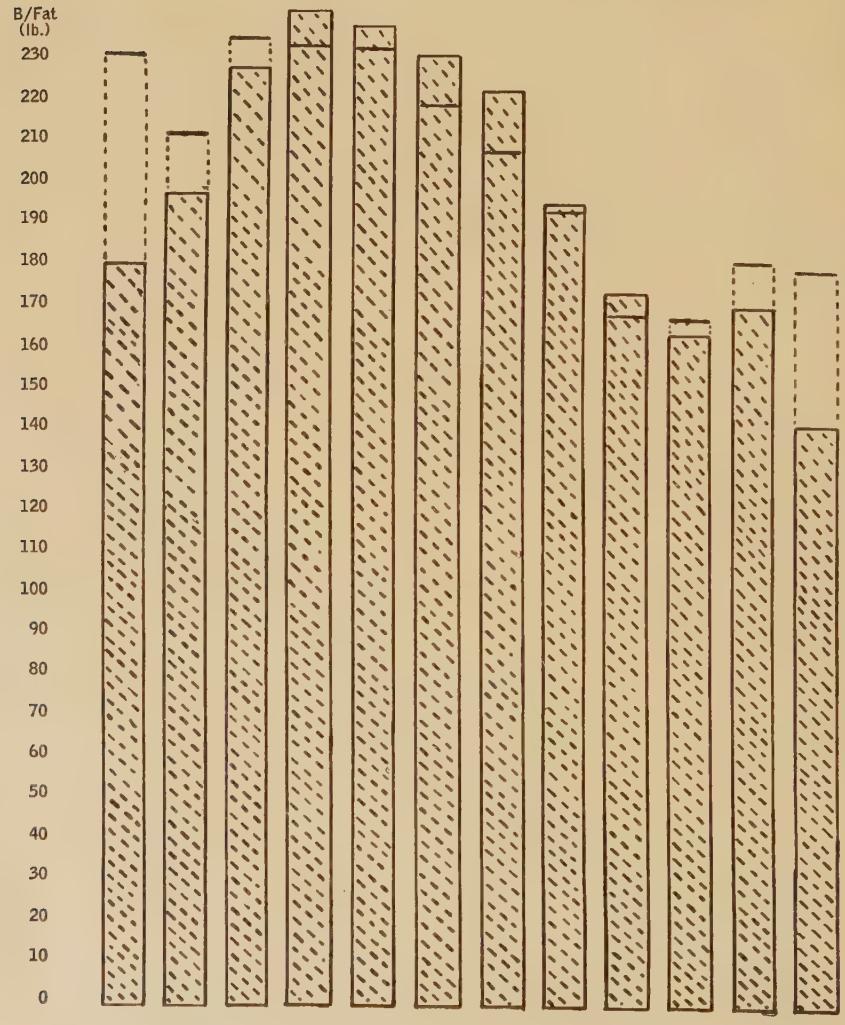
This information has been put forward on previous occasions and was the subject of a special report in the December, 1949, issue of this journal. The information for the current year, according to the month of calving and for the whole period since 1936 is shown in Table 8. The position is also shown diagrammatically, and in a form which enables a ready appreciation of the importance of bringing the cows in during the months already referred to.

GRAPH I. G.H.R. 1949-50.

Butterfat Production with Relation to Month of Calving.

Stippled—7 years, 1936-1942, and 4 years, 1946-1950.

Plain line—1 year, 1949-1950.



	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
*1,101	1,785	5,535	13,880	15,425	14,783	13,341	8,264	4,382	2,384	1,146	860
†110	196	643	2,236	2,480	2,046	1,721	1,359	841	425	178	120

*No. of lactations 1936-42 and 1946-50.

†No of lactations 1949-50.

TABLE 9.

HERD WASTAGE.

Unit.	Unit Letter.	No. of Cows in Unit.			Total Disposals, Wastage, etc.	Sold for Dairying Purposes.	A	B	C	D	E	F	G	H	I
								Disease.			Other Causes.				
		A Class.	B Class.	Total Cows.			Low Production.	Udder Troubles Mammitis, etc.	Abortion and Sterility.	T.B.	Other Diseases.	Accident or Injury.	Old Age.	Other Causes.	Sundry Deaths.
Pinjarra	A	608	50	658	245	50	113	34	29	....	1	2	7	7	2
Waroona	B	665	42	707	41	....	33	2	2	....	....	....	3	1	....
Harvey	C	983	51	1,034	94	4	57	9	11	....	1	1	2	2	7
Brunswick	D	635	24	659	72	1	65	....	....	....	....	1	2	....	3
Ruabon	E	794	26	820	105	3	47	27	14	....	....	2	7	4	1
Metricup	F	519	19	538	61	10	38	4	....	....	2	....	1	3	3
Cowaramup	G	587	26	613	111	1	65	6	12	....	4	5	3	9	6
Margaret River	I	441	3	444	59	....	51	3	2	....	....	....	....	2	1
Rosa Brook	J	460	67	527	69	2	43	....	7	....	....	3	10	....	4
Forest Grove	K	523	36	559	65	....	43	8	7	....	1	2	2	2	....
Donnybrook	L	486	11	497	49	11	30	1	....	....	....	1	2	....	4
Balingup	M	616	*Nil*	616	111	7	87	....	5	....	....	2	2	3	5
Bridgetown	N	636	14	650	179	10	120	10	9	....	....	1	14	2	13
Pemberton	P	521	20	541	80	9	47	4	8	....	4	6	1	1	....
Wilga	R	520	55	575	52	4	25	20	1	....	....	....	1	....	1
Mt. Barker	S	694	9	703	117	9	69	....	2	....	2	1	13	10	11
Albany	T	391	22	413	70	3	43	13	2	....	....	1	3	1	4
Nannup	U	679	31	710	94	11	34	13	....	....	....	5	6	23	2
Vasse-Jindong	V	687	31	718	72	6	43	14	3	....	....	3	....	1	2
Denmark	W	466	19	485	72	4	32	7	13	....	1	2	9	3	1
Northcliffe	X	630	8	638	161	11	132	2	2	....	....	3	....	1	10
Scotsdale	Y	569	16	585	77	7	52	9	1	....	1	1	2	....	4
Armadale	Z	868	4	872	172	....	82	29	27	19	1	1	5	3	5
Albany, West	A*	513	17	530	74	1	42	23	2	....	....	2	2	1	1
Walpole	B*	573	33	606	46	2	18	2	2	....	1	1	9	2	9
Capel	C*	986	23	1,009	23	2	16	1	....	....	....	2	1	....	1
Karridale	D*	568	35	603	80	12	58	2	1	....	1	2	1	....	3
Totals	....	16,618	692	17,310	2,451	180	1,485	243	162	19	20	50	108	81	103
Percentages	....	96.1	3.9	100	14.1	1.0	8.6	1.4	0.9	0.1	0.1	0.3	0.6	0.5	0.6

*Inverted.

Causes of Herd Wastage.

As in the last two or three years data has been collected regarding the causes of herd wastage. In the period under review the total disposals represented 14.1 per cent of the total number of cows in the unit. The causes of wastage were as follows:—

Sold for dairying	1 per cent.
Low production	8.6 per cent.
Udder troubles	1.4 per cent.
Abortion and Sterility	0.9 per cent.
T.B.	0.1 per cent.
Other diseases	0.1 per cent.
Accidents	0.3 per cent.
Old age	0.6 per cent.
Other causes	0.5 per cent.
Sundry deaths	0.6 per cent.

The details for each unit are given in Table 9.

The variation in wastage between districts is most marked. For example, in the Pinjarra area the total wastage represents over one third of the total number of cows in the unit, whereas at Waroona, the wastage represents only 6 per cent. of the total number of cows.

From year to year the relative position between the units varies and where one unit shows a low average on one occasion, it may, in another year, show a very high result.

The information is of value in determining the causes of wastage and of designing an approach towards assisting farmers with advice.

Unfortunately, there are insufficient veterinary officers to give a full service, but efforts are being made to improve the position. Data is being accumulated which will enable an intelligent approach to be made to the problem. During the coming year, farmers will be supplied with a service chart, so that exact information can be recorded regarding the incidence of sterility by measuring the rate of conception.

From the figures referred to above, it will be seen that among the major causes of losses, are abortion and sterility, which are problems widespread throughout all dairying districts, and countries.

Table 10.

AVERAGE COMPLETE LACTATIONS GROUPED ACCORDING TO AVERAGE TEST OF HERDS (ALL BREEDS.)

1948-49, 1949-50. (2 YEARS.)

Test.	No. of Herds.	No. of Cows.	Average Milk.	Average Test.	Average. Butterfat.
			lb.	%	lb.
3.5 or less	12	291	6,290.1	3.48	219.2
3.6–4.0	172	4,628	5,216.6	3.91	204.1
4.1–4.5	423	8,704	4,834.7	4.27	206.6
4.6–5.0	292	5,987	4,686.3	4.74	222.0
5.1–5.5	67	1,109	4,959.4	5.22	258.8
5.6 and over	9	151	4,538.8	5.87	266.6

Influence of Butterfat Percentage on Yields.

As in previous years, the average productions of the herd have been segregated according to the average test, and the information is given in Table 10.

It will be seen that the herds with the highest test have generally a higher average yield than those with a low test. A combination of the last two years indicates the same position.

An analysis of the average yields for individual cows grouped according to the average test, and of various breed classifications was attempted. Unfortunately the information on which segregation according to breed could be carried out is not satisfactory and therefore details are not published. It can be stated however, that generally, in the breed classifications which were tried but which cannot be considered to be exact, the same general trend can be disclosed i.e. as the test rose, so did the average yield of butterfat.

The trend was not uniform for all classifications and, in some of the crosses of breeds notable for their capacity to produce large quantities of milk of a low butterfat percentage showed variable results. It is obviously impossible to attempt breed differentiation unless the cows are approaching purity in respect to one or another breed.

Proved Bulls.

Table 11 shows the average yields of the daughters of various bulls, where six or more completed lactation.

The highest performance was recorded by the daughters of Murray Glen Lord Avon, owned by Mr. F. Byrd, of Harvey, where the average for 16 daughters was 379 lb. of butterfat. Unfortunately the bull is dead and therefore its value cannot be extended.

The next most satisfactory bull was Summerlea Statesman owned by Messrs. C. and E. Heathcote of Northcliffe, whose six daughters averaged 350 lb.

The third bull was Denmark Ace's Image, owned by A. R. Rogers of Scotsdale, whose seven daughters averaged 348 lb.

As in the last two reports, the data has been segregated according to the age of the daughters and the period of testing. It is considered that this information is more satisfactory than the statement of a simple average irrespective of age.

Herds of Various Sizes.

Tables 12, 13, 14 and 15 show the leading herds of various sizes. That owned by Mr. W. J. Smith, of Scotsdale, was the leading herd in the under 20 group. His 14 cows averaged 329.8 lb. In the group 20 to 30 cows, Mr. F. Larsen, of Cowaramup, averaged 333.4 lb. with 20 cows. In the 30 to 50 class, Mr. C. E. Jackson, with 48 cows averaged 303 lb. while in the largest group over 50 cows, the 51 cows owned by Mr. A. W. Cunningham, of Armadale, averaged 313.6 lb.

The list of performances given in each group is a very definite improvement, but there are many farmers in this State who are capable of continuing a high level of management and succeeding in getting high average yields from their herds.

TABLE 11.

GRADE HERD RECORDING, 1949-50.

BULLS WITH SIX OR MORE DAUGHTERS COMPLETING LACTATION.

Bull.	Breed.	Daughters.										Unit.	Owner.	Age of Bull.
		2-Year Old.		3-Year Old.		4-Year Old.		Mature.		Total.				
		No.	Average Butter-fat.	No.	Average Butter-fat.	No.	Average Butter-fat.	No.	Average Butter-fat.	No.	Average Butter-fat.			
			lb.		lb.		lb.		lb.		lb.			
Murray Glen Lord Avon	Friesian	....	....	....	....	1	397.0	15	378.5	16	379.6	Harvey	F. Byrd	Dead
Summerlea Statesman	A.I.S.	....	....	....	....	....	....	6	350.7	6	350.7	Northcliffe	C. and V. Heathcote	13
Denmark Ace's Image	Guernsey	3	293.3	1	376.0	3	394.7	....	....	7	348.6	Scotsdale	A. R. Rodgers	8
Greenmount Gold Boy	Jersey	....	....	1	383.0	5	317.0	8	343.5	14	336.9	Nannup	V. J. Knapton	....
Eminent Stiffon	Jersey	1	401.0	....	....	....	....	5	324.0	6	336.9	Albany, West	F. V. Hortin	....
Hopelands Golden Boy	Jersey	....	....	11	323.8	....	....	....	....	11	323.8	Nannup	V. J. Knapton	7
Denmark Anthony	Guernsey	....	....	....	....	2	312.5	4	326.7	6	321.7	Albany	F. Allwood	14
Navau Royal Star	Jersey	2	257.5	6	335.7	4	310.5	10	321.9	22	317.7	Harvey	A. G. Eckersley	12
Cleeve Avon Cobber	Friesian	5	359.6	3	320.7	1	268.0	4	272.5	13	316.8	Harvey	F. Byrd	Dead
Lansdowne Ace 5th	Guernsey	1	239.0	....	....	2	407.5	4	287.5	7	314.9	Pemberton	D. Della	Dead
Walgett Masterpiece	Jersey	....	....	....	....	....	....	8	306.7	8	306.7	Bridgetown	J. C. Williams	....
Lansdowne Ferdinand	Guernsey	....	....	2	259.8	2	301.5	8	317.5	12	305.2	Forest Grove	J. H. Oldfield	12
Yokanup Record	A.I.S.	....	....	....	....	....	....	6	304.7	6	304.7	Albany, West....	Puls Bros.	....
Moorlands Gold Duke	Jersey	2	241.0	7	293.7	4	306.5	2	388.5	15	302.7	Cowaramup	A. Millar	....
Grass Vale Skipton	Jersey	2	260.5	2	258.5	6	321.3	1	349.0	11	301.4	Donnybrook ..	E. W. M. Trigwell	7
Wooroloo Noble 4th	A.I.S.	....	....	....	....	....	....	7	301.0	7	301.0	Capel	E. L. House	....
Sabina Vale Angler	Jersey	....	....	....	....	....	....	11	300.4	11	300.4	Nannup	V. J. Knapton	....
Radyr Park September Lad	Jersey	2	238.5	2	254.5	4	349.5	....	....	8	298.0	Harvey	L. M. Temple	7
Brackenhurst Marquis	A.I.S.	1	399.0	2	221.0	2	302.0	9	302.0	14	297.5	Cowaramup	A. W. and W. L. Langley	Dead

The Towers Empire Prince	Jersey	....	....	2	283.0	4	246.2	14	314.4	20	297.5	Donnybrook	R. Benson	Dead
Grass Vale Design's Ruler	Jersey	1	171.0	1	223.0	7	310.7	12	301.0	21	294.3	Donnybrook	E. W. M. Trigwell	Dead
Walgett Ruby Noble....	Jersey	....	....	....	....	1	256.0	7	297.9	8	292.8	Nannup	S. C. Maidment	Dead
Brookfield's Bulwark	Guernsey	1	286.0	4	279.7	2	309.0	2	303.0	9	292.1	Albany	L. Jordan	10
Barney's Corner Bright Boy	Jersey	....	....	1	335.0	6	248.2	23	301.3	30	291.8	Ruabon	W. H. Semmens & Sons	10
Muresk Paladin	Guernsey	....	....	....	....	1	286.0	9	292.2	10	291.6	Forest Grove	H. T. Harrison	Dead
Eungella Golden Starbright	Jersey	....	....	8	270.9	....	....	2	364.0	10	289.5	Pinjarra	T. Abbott	Dead
Koojan Ideal's Excelsior	Guernsey	1	218.0	5	277.0	6	310.7	....	....	12	288.9	Forest Grove	E. G. Noakes....	10
Coogely Millicent's King	Guernsey	....	....	....	....	....	....	7	288.3	7	288.3	Wilga	R. Charteris	....
Eastbrook Tribute	Guernsey	....	....	....	....	....	....	8	287.7	8	287.7	Pemberton	D. Della	Dead
Summerlea Scientist	A.I.S.	....	....	1	286.0	4	272.0	9	294.7	14	281.1	Cowaramup	A. W. Dempster	....
Wooroloo Noble 2nd	A.I.S.	....	....	....	....	1	373.0	6	264.8	7	280.3	Harvey	S. G. Fry	Dead
Westby Regent	A.I.S.	....	....	4	231.2	3	255.0	3	288.7	10	279.6	Albany, West....	F. M. Worsfold	...
Colliedale Bance	Jersey	2	232.0	5	302.4	....	....	1	256.0	8	279.0	Brunswick	F. R. Prout	8
Sabina Vale Robeson	Jersey	1	267.0	....	....	....	....	28	277.0	29	276.7	Cowaramup	A. Whyte (Mrs.)	....
Kapara Emblem	Jersey	....	....	....	....	6	286.3	8	266.7	14	275.1	Scotsdale	J. T. Stephens	....
Walgett Golden Prince	Jersey	3	180.0	4	276.7	2	250.5	1	225.0	10	273.3	Brunswick	W. V. Poad (Mrs.)	9
Denmark Angeline's Reflection	Guernsey	1	137.0	6	246.3	4	267.2	3	290.0	13	273.3	Armadale	B. G. Blomfield	7
Namder Prince	Jersey	1	157.0	3	312.7	4	242.7	4	282.7	12	266.4	Denmark	H. S. Redman	....
Dunmore David	Friesian	....	....	2	253.0	6	259.7	3	286.0	11	265.6	Nannup	V. Scott	10
Koojan Ideal's Masher	Guernsey	....	....	....	....	3	255.7	3	275.3	6	265.5	Cowaramup	R. H. Earl	....
Muresk Lancelot	Guernsey	....	....	....	....	....	....	7	265.1	7	265.1	Bridgetown	W. C. Lowe	12
Chenar Reward	Jersey	....	....	2	214.5	....	....	4	286.2	6	262.3	Metricup	A. S. Mutimer	7
Brackenhurst Gibson's Champagne	A.I.S.	....	....	4	241.7	6	260.5	11	267.6	21	260.6	Nannup	S. C. Maidment	Dead
Grass Vale Nora's Chief	Jersey	....	....	1	263.0	....	....	16	258.3	17	258.9	Brunswick	W. V. Poad (Mrs.)	....
Rutherwood Danny Boy	Guernsey	2	204.5	6	276.0	....	....	....	....	8	258.1	Albany, West....	Puls Bros.	7
Glanavon Recorder	A.I.S.	4	236.0	8	256.6	1	347.0	....	....	13	257.2	Capel	E. L. House	Dead
Colmyn Golden 3rd	Jersey	....	....	....	....	....	....	14	256.9	14	256.9	Metricup	A. S. Mutimer	12
Koojan Ace's Radiance	Guernsey	10	264.3	6	244.2	....	....	....	....	16	256.7	Forest Grove	J. H. Oldfield	....
Westby Commander	A.I.S.	....	....	3	196.3	1	233.0	17	264.6	21	253.3	Denmark	F. C. Smith	....
Glanavon Lord	A.I.S.	....	....	16	252.2	....	....	....	....	16	252.2	Nannup	S. C. Maidment	5
Summerlea Eden	A.I.S.	....	....	....	....	1	187.0	8	260.0	9	251.9	Metricup	J. Simpson	....
Denmark Dawn's Goldseeker	Guernsey	9	206.6	8	253.9	4	244.0	10	291.2	31	251.2	Albany, West....	Farr Bros.	11
Muresk Jeremy	Guernsey	....	....	1	251.0	4	259.0	11	248.1	16	251.0	Wilga	J. S. Charteris....	....
Ilginup Monarch's Kaiser	A.I.S.	8	220.4	6	287.7	....	....	....	....	14	249.2	Vasse	H. P. Avery	Dead
The Wold Butter King 2nd	Jersey	....	....	....	....	3	257.3	4	243.2	7	247.3	Donnybrook	J. D. Keall	....

TABLE 11—*continued.*

GRADE HERD RECORDING, 1949-50—*continued.*

BULLS WITH SIX OR MORE DAUGHTERS COMPLETING LACTATION.

Bull.	Breed.	Daughters.										Unit.	Owner.	Age of Bull.
		2-Year Old.		3-Year Old.		4-Year Old.		Mature.		Total.				
		No.	Average Butter-fat.	No.	Average Butter-fat.	No.	Average Butter-fat.	No.	Average Butter-fat.	No.	Average Butter-fat.			
			lb.		lb.		lb.		lb.		lb.			
Barrowdale Lucky Lad	Jersey	8	249.7	4	253.0	3	298.7	6	212.9	21	246.8	Albany	Hawley Bros.....	9
Wandagarrup Winston	Red Poll	....	....	....	....	1	251.0	8	244.5	9	246.3	Northcliffe	Mrs. Gould & Son	....
Sabina Vale Prince	Jersey	....	....	....	....	....	....	13	245.5	13	245.5	Forest Grove	J. McLaren	....
Glanavon Pilot	A.I.S.	3	260.3	3	219.0	1	176.0	2	296.0	9	245.1	Vasse	D. A. and I. L. Lindberg	....
Summerlea Peer	A.I.S.	....	....	....	....	2	246.0	10	243.7	12	244.1	Vasse	F. L. Torrent	Dead
Grantham Oxford Standard	Jersey	....	....	6	238.3	10	242.2	....	....	16	240.7	Balingup	A. Tomerini	Dead
Summerlea Starlight	A.I.S.	....	....	....	....	1	230.0	10	239.3	11	238.5	Rosa Brook	E. McSwain	7
Austral Park Wonderful Standard	Jersey	....	....	6	220.7	1	187.0	1	388.0	8	237.4	Vasse	G. F. Semmens	Dead
Denmark Break of Day	Guernsey	5	236.4	1	240.0	....	....	....	....	6	237.0	Albany	F. Allwood	14
Koojan Ace's Theo	Guernsey	....	....	....	....	....	....	8	236.0	8	236.0	Northcliffe	Mrs. Gould & Son	....
Travalgan Banker	Jersey	7	234.0	....	....	....	....	....	....	7	234.0	Balingup	M. Brennan	6
Cleeve Avon Bernie	Friesian	....	....	5	237.2	....	....	1	218.0	6	234.0	Harvey	F. Byrd	6
Capel Regent's Desire	A.I.S.	7	224.4	4	247.8	....	....	....	....	11	232.9	Ruabon	P. J. Casselton	....
Valliere Ensign	A.I.S.	6	185.3	4	303.2	....	....	....	....	10	232.5	Ruabon	J. E. Glendon	7
Brookfield's Bachelor....	Guernsey	6	195.0	2	252.0	2	222.5	10	253.1	20	232.5	Forest Grove	R. J. Henderson	14
Yaloran Duke 75th	A.I.S.	7	235.4	1	211.0	....	....	....	....	8	232.4	Capel	R. L. Maidment	....
Norinya Nimble	Jersey	....	....	1	100.0	7	202.4	14	246.8	22	231.5	Harvey	A. Stanford	10
Juadine Peerless	Jersey	5	199.6	....	....	....	....	5	259.8	10	229.7	Bridgetown	J. C. Williams	....

Yaloran Duke	A.I.S.	3	193.7	3	218.7	2	193.0	7	257.6	15	228.4	Albany, West....	E. Mullally ....
Grantham Marchalong	Jersey	10	188.2	8	188.1	5	233.4	20	262.7	43	228.1	Balingup	G. White .... Dead
Clovelly Trump	Guernsey	....	....	2	215.5	5	207.8	6	246.7	13	226.9	Northcliffe	G. F. Tink .... Dead
Ilginup Evan's Pedro	A.I.S.	7	220.9	11	226.8	1	258.0	....	....	19	226.3	Ruabon	J. Torrent ....
Wooroloo Red Idol	A.I.S.	4	169.0	2	237.0	4	273.7	....	....	10	224.5	Rosa Brook	E. McSwain 7
Muresk Justice	Guernsey	....	....	....	....	....	....	10	224.2	10	224.2	Forest Grove	H. T. Harrison Dead
Summerlea 0–4	A.I.S.	....	....	2	206.0	2	200.0	2	266.0	6	224.0	Donnybrook	M. C. Fry & Sons ....
Muresk Laddie	Guernsey	1	236.0	....	....	4	199.5	2	265.0	7	223.4	Bridgetown	W. C. Lowe ....
Brookfield's Boston	Guernsey	1	200.0	3	205.3	2	240.0	....	....	6	223.3	Albany	A. Bracknell 7
Maxwell Oliver	Guernsey	5	231.2	4	209.7	....	....	....	....	9	221.7	Scotsdale	A. R. Rodgers ....
Wattle Creek Bernard	A.I.S.	4	194.7	3	217.0	3	249.3	4	230.0	14	221.3	Bridgetown	H. S. and E. P. Moyes 8
Denmark Velveteen's Reflection	Guernsey	3	177.3	3	236.3	1	296.0	1	232.0	8	221.1	Metricup	J. Simpson 8
Tipperary Trump	A.I.S.	7	145.4	2	289.0	....	....	5	300.0	14	221.1	Northcliffe	J. Adam .... Dead
Wattle Hill Saar King	A.I.S.	10	209.1	5	205.0	2	233.5	5	272.6	22	220.7	Ruabon	F. J. Oates ....
Crantock Starbright Talisman	Jersey	1	150.0	2	164.5	3	284.0	4	212.7	10	218.2	Denmark	C. D. Lehman.... 8
Ilginup Surprise's Novice	A.I.S.	5	209.0	2	244.0	2	209.5	....	....	9	216.9	Vasse	W. Fish .... Dead
Grantham Starbright Northwood	Jersey	1	171.0	....	....	5	229.4	2	203.0	8	215.5	Metricup	C. W. Heath.... ....
Mereworth Oxford Prince	Jersey	2	168.0	....	....	5	217.8	10	220.2	17	213.4	Balingup	A. L. Lee .... Dead
Summerlea Milkmaid's Renown	A.I.S.	....	....	....	....	....	....	7	211.4	7	211.4	Nannup	Roberts Estate Dead
Grantham Forward March	Jersey	1	204.0	3	185.3	2	222.5	3	231.7	9	211.1	Waroona	Bowles & Sons Dead
Woodsome Royal	Red Poll	1	192.0	6	183.2	4	223.0	5	232.6	16	210.4	Waroona	J. Salerian 11
Colliedale Barney	A.I.S.	....	....	....	....	4	187.7	6	225.2	10	210.2	Armadale	F. R. Williams ....
Capel Noraleader's Chief	Jersey	3	215.3	11	202.1	7	218.9	....	....	21	209.6	Vasse	D. G. Lord .... Dead
Nooka O.K. King 3rd	Jersey	5	208.4	....	....	1	209.0	....	....	6	208.5	Forest Grove	J. McLaren ....
Grantham Fairy Marchalong 2nd	Jersey	8	208.7	8	207.3	....	....	....	....	16	208.0	Balingup	A. Tomerini 7
Travalgan Fashion Plate	Jersey	....	....	3	205.0	....	....	4	207.5	7	206.4	Donnybrook	A. C. Frost 10
Crantock Starbright's King	Jersey	3	185.3	2	241.5	1	178.0	1	224.0	7	205.9	Scotsdale	F. F. Hick ....
Colmyn Snowflake's Chief	Jersey	....	....	....	....	1	252.0	9	198.0	10	203.4	Rosa Brook	G. Crozier .... Dead
Basildene Baronet 3rd	A.I.S.	1	143.0	3	214.7	....	....	3	204.3	7	200.0	Margaret River	W. B. Wickham ....
Rosella Commander	Guernsey	3	143.0	6	195.2	5	204.4	5	230.0	19	198.5	Rosa Brook	F. J. Busby & Sons 7
Spring View Charley	Jersey	1	206.0	3	206.7	1	185.0	1	174.0	6	197.5	Wilga	J. Elder 9
Cleeve Avon Teddie	Friesian	5	158.6	6	215.0	1	250.0	....	....	12	194.4	Waroona	G. Hill 6
Valliere General	A.I.S.	....	....	8	178.1	11	209.6	1	173.0	20	194.4	Capel	M. G. Bentley 8
Wooroloo Rosie 3rd's Gardinia	A.I.S.	....	....	....	....	....	....	10	191.6	10	191.6	Pemberton	W. Hamilton.... ....
Many Peaks Corporal	A.I.S.	4	128.7	3	218.7	2	193.0	3	235.7	12	188.7	Albany, West....	F. Pease ....
Denmark Sunray	Guernsey	3	191.7	1	80.0	3	191.3	4	210.2	11	188.2	Northcliffe	M. Humphries 11

TABLE 11—*continued.*

GRADE HERD RECORDING, 1949-50—*continued.*

BULLS WITH SIX OR MORE DAUGHTERS COMPLETING LACTATION.

Bull.	Breed.	Daughters.										Unit.	Owner.	Age of Bull.
		2-Year Old.		3-Year Old.		4-Year Old.		Mature.		Total.				
		No.	Average Butter-fat.	No.	Average Butter-fat.	No.	Average Butter-fat.	No.	Average Butter-fat.	No.	Average Butter-fat.			
			lb.		lb.		lb.		lb.		lb.			
Mereworth Butter King	Jersey	1	94.0	....	....	5	205.0	....	....	6	186.5	Nannup	Pearson Bros.	8
Drakesbrook Golden Aurie	Guernsey	....	....	1	164.0	1	117.0	8	197.9	10	186.4	Scotsdale	R. J. Russell	Dead
Capel Gladys Dandy	Jersey	....	....	3	178.7	3	189.0	....	....	6	183.8	Rosa Brook	G. Crozier	10
Greenfield's Prince	Guernsey	4	168.5	3	173.3	4	192.2	3	196.7	14	182.4	Balingup	H. H. Daniells	8
Brackenhurst Roger	A.I.S.	7	167.6	8	178.7	3	159.3	5	214.0	23	180.5	Bridgetown	W. K. Walter	Dead
Grantham Fairy's Marchon	Jersey	....	....	11	184.2	1	135.0	....	....	12	180.1	Donnybrook	W. Price	7
Claremont Toby	A.I.S.	5	132.6	1	252.0	2	234.5	1	224.0	9	178.7	Balingup	D. Scott	Dead
Fairbridge Prince	A.I.S.	....	....	....	....	....	....	10	178.3	10	178.3	Donnybrook	M. C. Fry & Sons	....
Koojan Ideal's Commander	Guernsey	8	171.2	1	226.0	....	....	....	....	9	177.3	Vasse	R. S. Avery	....
Ilginup Evan's Orlando	A.I.S.	9	177.1	....	....	....	....	....	....	9	177.1	Vasse	F. L. Torrent	....
Brackenhurst Bruce	A.I.S.	5	159.0	1	165.0	2	226.0	....	....	8	176.5	Bridgetown	R. E. Elwin	8
Rosewood Melody Chief	Guernsey	....	....	....	....	....	....	9	171.5	9	171.5	Northcliffe	M. Humphries	....
Yokanup Trump	A.I.S.	5	159.8	1	223.0	....	....	....	....	6	170.3	Mt. Barker	G. Rowe & Sons	....
Woodford Bill	Guernsey	6	169.2	1	167.0	....	....	....	....	7	168.9	Scotsdale	R. J. Russell	8
Wooroloo Top Gallant	A.I.S.	....	....	1	268.0	3	159.0	7	158.0	11	168.3	Armadale	F. R. Williams	....
Wooroloo Dauntless	A.I.S.	....	....	5	167.6	2	175.5	2	162.5	9	168.2	Armadale	P. Warren	10
Nooka May King 5th	Jersey	4	133.0	2	155.5	2	249.5	....	....	8	167.7	Denmark	A. F. Smith	....
Tregony Morning Star	A.I.S.	....	....	1	109.0	5	147.0	1	201.0	7	163.6	Nannup	Roberts Estate	Dead
Denmark Golden Image	Guernsey	....	....	....	....	5	145.8	2	201.0	7	161.6	Denmark	J. Richardson....	....
Kapara V.C.	Jersey	14	159.6	....	....	....	....	....	....	14	159.6	Albany, West....	H. T. Coombe	5
Clovelly Golden Treasure	Guernsey	8	140.4	....	....	4	184.2	1	204.0	13	158.8	Nannup	S. Grimes	8
Clubmore Jonathan	A.I.S.	....	....	6	146.8	8	166.0	....	....	14	157.8	Metricup	G. M. Smith	....

Hopelands Star Flash	Jersey	....	8	153.1	1	193.0	....	....	9	157.6	Balingup	H. L. Ayers	7
Denmark Golden Nimrod	Guernsey	2	153.5	3	130.0	1	135.0	4	186.0	10	157.6	Denmark	J. Richardson....	11
Brookfield's Bureaucrat	Guernsey	....	....	7	157.6	....	....	....	....	7	157.6	Pinjarra	L. Fauntleroy	6
Sans Souci Double Success	Jersey	....	....	....	....	....	....	6	157.0	6	157.0	Pemberton	H. Styles	16
Claremont Royalist	A.I.S.	....	....	....	....	1	153.0	9	156.2	10	155.9	Armadale	Pollard & Sons	11
Cleeve Avon Paul	Friesian	6	149.5	2	172.5	....	....	....	....	8	155.2	Rosa Brook	L. Low	....
Summerlea Evatt	A.I.S.	2	137.5	3	143.0	4	171.2	1	151.0	10	154.0	Pemberton	W. Hamilton	6
Radyr Park Lightning	Jersey	6	142.5	....	....	....	....	....	....	6	142.5	Karridale	W. A. McDonald	Dead
Weranoa Victor	A.I.S.	3	135.7	3	136.0	2	128.5	....	....	8	134.0	Denmark	R. G. Walter	Dead
Denmark Ripple's Reflection	Guernsey	3	98.3	3	125.7	....	....	....	....	6	112.0	Albany	C. J. Jarrett	6

Table 12.

LEADING HERDS OF LESS THAN 20 COWS.

Owner.	Unit.	No. of Cows.	Breed.	Butterfat Average (lb.)
W. J. Smith	Scotsdale	14	Guernsey	329.8
L. A. Jackman	Armadale	18	Friesian	317.0
O. Foan	Donnybrook	19	Jersey	315.5
J. Thompson	Wilga	17	A.I.S.	298.5
J. J. Joyce	Albany West	14	Jersey x A.I.S.	295.2
H. Leonhardt	Brunswick	19	Mixed	295.1
H. W. Stain	Mt. Barker	10	Guernsey	295.0
W. Middleton	Denmark	19	Jersey	293.8
J. Jarvis	Donnybrook	18	Jersey	287.5
F. Palmer	Walpole	15	Jersey	284.7
J. F. Moran	Albany West	13	Mixed	270.8
J. W. Marshall	Cowaramup	17	A.I.S. x	266.9
R. Wright	Wilga	14	A.I.S. x	265.2
A. L. Gibbs	Cowaramup	16	Mixed	263.4
A. F. Pike	Albany West	18	Mixed	262.6
K. J. Hunwick	Forest Grove	18	Jersey	258.3
C. W. A. Wood	Margaret River	9	Guernsey x Jersey	257.9
P. Salmon	Cowaramup	17	Jersey	250.5

Table 13.

LEADING HERDS OF 20–30 COWS.

Owner.	Unit.	No. of Cows.	Breed.	Butterfat Average (lb.)
F. Larsen	Cowaramup	20	Mixed	333.4
K. Sanders & Son	Northcliffe	27	Mixed	331.0
C. Carver	Harvey	22	Mixed	330.9
T. W. Jackson	Waroona	25	Mixed	315.6
J. A. Dowrick	Balingup	30	Mixed	298.5
M. Brennan	Balingup	30	Jersey x Guernsey	296.3
J. R. Male	Albany West	14	Mixed	293.0
M. L. House	Ruabon	24	A.I.S.	291.4
C. & V. Heathcote	Northcliffe	27	Mixed	289.7
R. Benson	Donnybrook	29	Jersey	285.1
P. Burton	Walpole	25	Guernsey x	281.7
K. Riising	Northcliffe	27	Mixed	278.5
T. Abbott	Pinjarra	23	Jersey	276.6
B. G. Blomfield	Armadale	29	Mixed	276.3
F. M. Worsfold	Albany West	25	A.I.S.	275.3
K. Chapman	Wilga	27	Mixed	270.6
D. Della	Pemberton	27	Guernsey	269.8
F. V. Hortin	Albany West	26	Mixed	268.3
G. Jarvis	Nannup	28	Mixed	267.8
V. Scott	Nannup	24	Friesian	266.2
W. C. Lowe	Bridgetown	29	Mixed	264.4
T. H. M. Lefroy	Cowaramup	22	Mixed	260.9
A. Burton	Walpole	28	Mixed	259.9
Hawley Bros.	Albany	26	Jersey	258.2
E. A. Holbin	Cowaramup	27	Jersey	256.9
L. M. Temple	Harvey	24	Mixed	250.7
J. T. Stephens	Scotsdale	23	Jersey	250.2

TABLE 14.

LEADING HERDS OF 31–50 COWS.

Owner.	Unit.	No. of Cows	Breed.	Butterfat Average (lb.)
C. E. Jackson	Brunswick	48	Jersey	303.1
E. C. Noakes	Forest Grove	39	Guernsey x	298.5
A. W. & W. L. Langley	Cowaramup	41	A.I.S.	295.6
W. H. Semmens & Sons	Ruabon	48	Jersey	294.3
E. W. M. Trigwell	Donnybrook	36	Jersey	293.3
A. Miller	Cowaramup	32	Jersey	281.9
J. C. Williams	Bridgetown	33	Jersey	271.6
P. J. Colum	Waroona	36	A.I.S. x	271.0
F. J. Edwards	Brunswick	43	Mixed	270.8
Puls Bros.	Albany West	35	Mixed	267.9
J. E. Glendon	Ruabon	40	A.I.S. x	266.5
A. W. Dempster	Cowaramup	39	A.I.S. x	265.1
J. H. Oldfield	Forest Grove	41	Guernsey	264.9
F. J. Smith	Balingup	31	Jersey	264.0
J. Bashford	Northcliffe	31	Mixed	263.3
A. G. Eckersley	Harvey	44	Jersey	259.9
E. L. House	Capel	32	A.I.S.	259.1
F. G. Hutton	Capel	49	Friesian	259.1
W. V. Poad (Mrs.)	Brunswick	36	Jersey	254.3
A. Whyte (Mrs.)	Cowaramup	34	Jersey	254.0
F. H. Clifton	Capel	40	A.I.S.	253.9
F. R. Prout	Brunswick	34	Jersey	251.8
H. P. Avery	Vasse	37	Mixed	251.1

TABLE 15.

LEADING HERDS OF 51 COWS OR MORE.

Owner.	Unit.	No. of Cows.	Breed.	Butterfat Average (lb.)
A. W. Cunningham	Armadale	51	Friesian	313.6
V. J. Knapton	Nannup	61	Jersey	307.8
F. Byrd	Harvey	52	Friesian	278.1
R. Beacham	Pinjarra	56	Mixed	267.0
S. C. Maidment	Nannup	52	Mixed	255.3
M. I. Scott	Capel	51	Friesian	247.1
J. Somerset	Nannup	71	Friesian	243.6
F. R. H. Pugh & Son	Mt. Barker	57	R. Poll	239.4
Norton Bros.	Capel	89	Mixed	232.3
S. G. Fry	Harvey	79	A.I.S.	230.4
S. Mullins	Pinjarra	56	A.I.S.	230.2

Highest Producing Cow.

Table 16 shows the highest producing cow in each unit. The best performance for the year was by the cow Brindle, owned by Messrs. K. Sanders and Sons, of Northcliffe, which produced 527 lb. of butterfat from 982 gallons of milk. This cow is a Jersey-Guernsey cross.

The second cow was owned by Mr. A. W. Cunningham of Armadale and produced 1270 gallons for 510 lb. of butterfat.

The third highest cow was owned by Mr. J. E. Glendon of Ruabon, and produced 1134 gallons for 509 lb. of butterfat.

Table 16.

THE HIGHEST PRODUCING COW IN EACH UNIT.

Name of Owner.	Unit.	Name of Cow.	Breed.	Milk.	Test.	Butter-fat.
				lb.	%	lb.
K. Sanders & Son	Northcliffe	Brindle	Jersey x Guernsey	9,825	5.3	527
A. W. Cunningham	Armadale	Smoky	Friesian	12,702	4.0	510
J E. Glendon	Ruabon	Cherie	A.I.S. x	11,349	4.49	509
W. J. Smith	Scotsdale	Topsy	Guernsey	11,004	4.5	500
F. R. Prout	Brunswick	Whisky	Jersey	9,450	5.1	487
C. Carver	Harvey	Nancy	Jersey	9,357	5.12	480
J. J. Joyce	Albany West	May	Jersey x Shorthorn	9,403	5.00	471
J. A. Dowrick	Balingup	Gearge	Jersey	9,384	5.00	471
A. W. & W. L. Langley	Cowaramup	Pearl	A.I.S.	11,409	4.10	468
O. Foan	Donnybrook	Pearl	Jersey	8,952	5.19	465
K. J. Hunwick	Forest Grove	....	Jersey	8,627	5.4	462
K. Chapman	Wilga	Wildy	Jersey	8,280	5.41	448
A. Burton	Walpole	Barbara	Guernsey	8,409	5.20	443
H. P. Avery	Vasse	Hefty	Shorthorn x Guernsey	9,255	4.70	435
G. Jarvis	Nannup	Beauty	A.I.S.	9,225	4.69	433
S. Mullins	Pinjarra	Dora	A.I.S.	9,957	4.30	432
F. Allwood	Albany	Erica	Guernsey	7,312	5.80	429
D. Della	Pemberton	Adelaide 2nd	Guernsey	8,276	5.10	425*
J. Brennan	Rosa Brook	Rosie	A.I.S.	9,450	4.49	425
T. W. Jackson	Waroona	Tibby	A.I.S.	9,315	4.50	424*
S. Walliss	Margaret River	Peach	Jersey x Guernsey	8,448	4.8	408
H. W. Stain	Mt. Barker....	Bunny	Guernsey	8,190	4.9	398
F. H. Clifton	Capel	Pet	A.I.S.	8,955	4.40	397
F. C. Smith	Denmark	Thelma	Jersey x	7,989	4.82	385
J. C. Williams	Bridgetown	Bonita	Jersey	6,902	5.30	372
J. Dennis	Karridale	Cherry	Guernsey	6,033	5.78	349
J. Hart	Metricup	Rosie	A.I.S. x	8,265	4.15	343

* Incomplete

Co-operative Dairy Farmers' Trophy.

Since the recommencement of testing following the war, the giving of trophies for individual cows and the leading herds in each unit, has not been a wide practice. However, one series of trophies is given which has very great merit. This is known as the Co-operative Dairy Farmers' Trophy and is designed to encourage farmers to improve the average production of their herds.

The main trophy is for the herd showing the greatest improvement in all units over a three-year period.

Prizes are also granted for the best performance in each unit each year, and Table No. 17 shows the winners this year.

TABLE 17.

THE CO-OPERATIVE DAIRY FARMERS' ANNUAL TROPHIES.

Owner.	Unit.	Average Butterfat Production.		Points Scored.
		1948–49.	1949–50.	
		lb.	lb.	
Wright, R.	Wilga	172	265	23.25
Miller, A.	Cowaramup	197	282	21.25
Jackman, L.	Armadale	271	315	17.60
Minchin, R. S.	Northcliffe	175	242	16.75
Knapton, V.	Nannup	286	308	14.67
Price, W.	Donnybrook	116	189	14.60
Murdoch, N. L.	Metricup	136	199	12.60
Hannay, P.	Pinjarra	179	228	12.25
Ferguson-Stewart, E. R.	Brunswick	178	226	12.00
Dean, A. F.	Harvey	184	232	12.00
Williams, J. C.	Bridgetown	231	272	11.71
Oates, F. J.	Ruabon	203	244	11.71
McGregor, R.	Vasse-Jindong	190	233	10.75
Littlefair, J. W.	Pemberton	176	207	7.75
Phillips, J.	Pemberton	163	194	7.75
White, G.	Balingup	203	229	7.43
Hawley Bros.	Albany	234	258	6.86
Wilson, D. C.	Scotsdale	144	170	6.50
Townsend, A. C.	Mt. Barker	178	200	5.50
Noakes, E. G.	Forest Grove	292	298	4.00
Mills, G. P.	Rosa Brook	233	236	0.86
Wickham, W. B.	Margaret River	212	210	0.57
Tyler, E. P.	Waroona	193	184	2.25
Richardson, J.	Denmark	175	154	5.25
Joyce, J. J.	Albany, West	....	295	First Year
Palmer, F.	Walpole	....	285	First Year
Hutton, F. G.	Capel	....	259	First Year
Fisher, V.	Karridale	....	220	First Year

Until such time as the units have been in test for three years, the trophies are given in the first year for the herds with the highest average production, and in the second year for those obtaining the greatest increase over the preceding year.

A handicap system is imposed as it is realised that it is more difficult for the owner of a high-producing herd to get a certain increase in production than it is for the owner of a low-producing herd to obtain a similar gross increase.

The major trophy for improvement over three years was given for the first time on the performance of the 1949-50 testing, and the winner has been Mr. F. Larsen, of Cowaramup. His herd has increased from 237 lb. of butterfat in 1946-47 to 294 lb. in 1947-48, 319 lb. in 1948-49 and 333 lb. in 1949-50.

The second best herd was that owned by Mr. J. Joyce, of West Albany, and the third place was filled by Mr. C. E. Jackson, of Brunswick.

Table 18.

THE CO-OPERATIVE DAIRY FARMERS' MAJOR TROPHY.

Owner.	Average Butterfat Production.				Points Scored.
	1946–47.	1947–48.	1948–49.	1949–50.	
Larsen, F., Cowaramup	237	294	319	333	46.94
Joyce, J. J., Albany, West	156	217	292	295	38.67
Jackson, C. E., Brunswick	203	218	291	303	33.09
Jackson, T. W., Waroona	218	300	319	316	33.08
Carver, C., Harvey	214	249	336	331	28.85
Moran, J. and F., Albany, West	174	212	256	271	28.07

The prizes for this competition are awarded jointly by the South-West Co-operative Dairy Farmers, and the Great Southern Co-operative Butter Company.

Average Yields of Individual Herds.

The average performances of each herd in the various units are as follows.

ALBANY T.

Herd.	No. of Cows.	Milk Average. gals.	Butter-fat Average. lb.
Hawley Bros.	26	5,154	258.2
Jordan, L.	23	5,220	246.6
Evans, G. E.	13	4,728	231.3
Herd L	22	5,055	225.3
,, A	20	4,454	224.1
,, F*	15	4,716	202.3
,, N	12	4,374	200.7
,, U	15	4,390	180.5
,, B	25	3,685	177.6
,, P*	11	3,884	168.5
,, R*	27	3,811	163.5
,, H	42	3,474	160.7
,, G*	14	3,448	151.8
,, P	23	2,927	140.7
,, S	15	3,057	137.9
,, L*	29	2,946	133.4
,, B*	18	2,777	132.2
,, A*	13	2,763	130.3
,, R*	8	2,733	127.9
,, K*	12	3,415	123.8

ARMADALE Z.

Herd.	No. of Cows.	Milk Average. gals.	Butter-fat Average. lb.
Jackman, L. A.	18	8,119	317.0
Cunningham, A. W.	51	8,157	313.6
Blomfield, B. G.....	29	6,128	276.3
Herd J	7	4,869	246.1
,, G	70	5,288	216.4
,, E	27	4,950	216.2
,, H	77	5,295	210.5
,, T	14	4,013	196.4
,, O	42	4,921	192.8
,, F	22	4,332	186.2
,, W....	43	4,285	176.5
,, M	54	4,300	176.2
,, X	10	4,365	166.9
,, V	54	4,150	166.1
,, L	65	3,903	159.4
,, D	22	3,277	150.4
,, Y	15	3,560	142.3
,, K	30	3,283	136.6
,, S	37	3,389	132.3
,, U	64	2,860	114.9
,, C	48	2,863	108.8

ALBANY WEST A.

Herd.	No. of Cows.	Milk Average. gals.	Butter-fat Average. lb.
Joyce, J. J.	14	5,857	295.2
Male, J. R.	20	6,601	293.0
Worsfold, F. M.	25	6,826	275.3
Herd X	13	5,991	270.8
,, L	26	5,994	268.3
,, W....	35	6,450	267.9
,, E	18	5,438	262.6
,, F	43	4,977	247.2
,, M	24	5,102	227.7
,, P	18	5,568	226.5
,, C	30	5,231	210.7
,, U	13	4,778	207.3
,, B	21	4,932	200.8
,, K	13	3,937	186.1
,, T	26	4,323	182.0
,, J	20	3,915	179.3
,, Z	20	4,258	179.1
,, O	14	4,710.7	171.4
,, S	16	3,662	153.5
,, T*	34	3,482	144.9
,, G	12	2,809	122.3

BALINGUP M.

Herd.	No. of Cows.	Milk Average. gals.	Butter-fat Average. lb.
Dowrick, J. A.	30	6,461	298.5
Brennan, M.	30	6,361	296.3
Smith, F. J.	31	5,536	264.0
Herd BE	22	5,374	246.0
,, U	26	5,254	236.4
,, N	49	4,865	229.0
,, BA	37	5,452	226.2
,, CF	38	5,295	218.3
,, CH	48	4,475	216.9
,, C	23	4,925	216.2
,, BG	23	4,279	196.4
,, BJ	24	4,525	192.3
,, DA	26	4,224	178.4
,, BK	24	3,506	169.2
,, BN	18	3,395	164.1
,, CB	15	3,726	163.2
,, CD	54	4,181	162.7
,, F	19	3,767	162.6
,, CA	22	3,452	151.3
,, DB	15	2,662	93.5
,, CE	7	2,006	90.8

* Inverted.

BRIDGETOWN N.

Herd.	No. of Cows.	Milk Average. gals.	Butter-fat. Average. lb.
Williams, J. C.	33	4,985	271.6
Lowe, W. C.	29	5,759	264.4
Moyes, H. S. and E. P.	28	5,891	235.9
Herd D*	21	5,624	232.5
„ ID	26	4,936	224.1
„ IK		4,487	217.7
„ V*	13	4,682	207.5
„ Λ*	15	4,405	200.8
„ V	17	4,554	199.8
„ IS....	15	4,441	195.0
„ Q	44	4,792	186.7
„ IX	25	4,038	174.8
„ ⊟†	13	3,355	170.8
„ S	32	3,809	170.6
„ IV	25	3,772	168.7
„ K*	18	3,898	166.6
„ IN	38	3,421	165.8
„ F*	38	3,703	160.8
„ V	37	3,258	159.9
„ Y*	14	3,118	154.3
„ G*	15	3,480	149.1
„ IC	56	2,631	110.3
„ IG	29	2,138	98.6
„ I	10	2,237	94.0

BRUNSWICK D.

Herd.	No. of Cows.	Milk Average. gals.	Butter-fat Average. lb.
Jackson, C. E.	48	5,391	303.1
Leonhardt, H.	19	6,375	295.1
Edwards, F. J.....	43	6,001	270.8
Herd E*	36	5,469	254.3
„ Z	34	4,972	251.8
„ F	29	5,185	239.6
„ X	34	5,125	226.1
„ A*	16	4,388	222.6
„ O	25	5,215	219.1
„ U	52	4,729	201.0
„ T	46	3,969	195.6
„ L*	40	4,475	185.1
„ W....	47	4,331	184.2
„ G*	50	4,132	168.1
„ K*	23	3,148	143.3
„ Y	35	2,801	136.8

CAPEL C.*

Herd.	No. of Cows.	Milk Average. gals.	Butter-fat Average. lb.
House, E. L.	32	7,389	259.1
Hutton, F. G.	49	7,067	259.1
Clifton, F. H.	40	6,454	253.9
Herd H	18	6,250	247.7
„ P	51	7,009	247.1
„ M	89	5,871	232.3
„ S	41	5,140	215.4
„ Q	88	5,254	206.9
„ G	63	5,046	203.7
„ L	45	5,383	202.5
„ F	24	5,532	201.9
„ U	29	5,308	196.9
„ A	41	5,332	194.6
„ T	54	5,147	190.8
„ V	18	5,028	182.8
„ K	34	4,725	181.2
„ E	38	4,774	180.9
„ B	60	4,470	172.0
„ O	45	4,667	170.1
„ R	41	3,352	155.4
„ D	46	3,372	114.1

COWARAMUP G.

Herd.	No. of Cows.	Milk Average. gals.	Butter-fat Average. lb.
Larsen, F.	20	7,787	333.4
Langley, A. W. and W. L.	41	7,184	295.6
Miller, A.	32	5,505	281.9
Herd C*	17	5,798	266.9
„ DD	39	6,412	265.1
„ V	16	5,947	263.4
„ T	22	6,256	260.9
„ G*	27	5,337	256.9
„ F*	34	5,299	254.0
„ F	17	5,063	250.5
„ BB	15	5,254	245.8
„ G	39	5,640	244.5
„ HH	15	5,247	242.0
„ AA	19	5,081	238.5
„ W....	22	5,226	234.0
„ M	17	4,987	224.8
„ D*	28	4,634	201.2
„ X	43	4,373	198.8
„ WV	27	4,464	196.5
„ B*	12	3,354	156.2
„ GG	19	2,620	119.8

* Inverted.

†Lazy—as if fallen to left.

DENMARK W.

Herd.	No. of Cows.	Milk Average. gals.	Butter-fat Average. lb.
Middleton, W.	19	5,288	293.8
Smith, A. F.	20	4,555	221.3
Pate, G.	19	4,956	219.5
Herd A	20	4,143	210.3
,, Q	14	4,507	207.8
,, F	31	5,056	206.8
,, E*	32	4,071	205.1
,, V	29	3,924	179.9
,, F*	20	4,049	177.0
,, A*	24	3,699	172.5
,, T	7	3,917	169.4
,, Y	24	3,410	154.0
,, O	27	3,693	147.2
,, I	16	3,338	145.1
,, C	13	2,703	133.9
,, B*	11	2,926	133.8
,, R	15	2,990	133.2
,, C*	9	3,106	126.0
,, X	14	2,915	123.9
,, K	29	2,680	120.1
,, M	27	2,429	103.2
,, A	1	1,645	87.0
,, Z	8	1,530	57.9

WAROONA B.

Herd.	No. of Cows.	Milk Average. gals.	Butter-fat Average. lb.
Jackson, T. W.	25	6,717	315.6
Colum, P. J.	36	6,413	271.0
Hicks, W.	39	4,971	231.8
,, Z	22	5,276	229.5
Herd A*	28	3,609	211.7
,, D*	20	4,396	206.1
,, B*	33	4,621	200.0
,, X	21	4,410	194.3
,, Q	12	3,908	188.5
,, T	34	3,675	185.6
,, M	84	3,773	181.7
,, O	28	3,562	160.5
,, P	30	3,752	158.1
,, E*	29	3,717	157.2
,, W....	31	4,683	147.9
,, G*	29	3,151	143.0
,, F*....	42	3,836	129.0
,, I	13	2,396	114.1
,, B	14	2,467	110.5

DONNYBROOK L.

Herd.	No. of Cows.	Milk Average. gals.	Butter-fat Average. lb.
Foan, O.	19	6,228	315.5
Trigwell, E. W. M.	36	6,193	293.3
Jarvis, J.	18	6,370	287.5
Herd D	29	5,313	285.1
,, C	20	4,617	244.6
,, K	19	5,000	240.0
,, AD	16	4,715	235.6
,, C*	20	5,066	229.0
,, B*	21	4,114	207.1
,, Q	30	3,791	195.6
,, I	10	4,115	190.9
,, D*	31	4,186	189.3
,, A	35	3,493	188.8
,, V	42	4,800	184.0
,, AB	15	3,707	174.7
,, X	25	3,286	161.2
,, W....	20	3,336	154.8
,, M	23	2,813	139.0
,, AC	21	2,713	122.9

HARVEY C.

Herd.	No. of Cows.	Milk Average. gals.	Butter-fat Average. lb.
Carver, C.	22	7,638	330.9
Byrd, F.	52	7,124	278.1
Eckersley, A. G.....	44	5,084	259.9
Herd F	24	5,270	250.7
,, E	39	5,525	242.8
,, R	34	3,737	232.5
,, U	48	5,551	230.9
,, X	79	5,280	230.4
,, H	49	5,531	224.9
,, C*	40	5,403	224.4
,, Z	63	4,395	189.1
,, K	33	4,425	188.4
,, CD*	30	4,419	185.3
,, C	40	4,331	182.9
,, M	67	4,492	182.2
,, D	53	4,452	178.3
,, B*	30	3,556	151.5
,, O	24	3,195	148.9
,, S	30	3,202	138.5
,, A*	25	3,162	136.2

* Inverted.

FOREST GROVE K.

Herd.	No. of Cows.	Milk Average gals.	Butter-fat Average lb.
Noakes, E. C.	39	6,275	298.5
Oldfield, J. H.	41	5,473	264.9
Hunwick, K. J.	18	5,096	258.3
Herd AB	15	5,742	244.5
„ T	27	5,307	240.0
„ JN	18	5,208	239.2
„ M	25	4,722	224.4
„ U*	22	4,732	223.1
AE	30	4,556	214.2
„ A*	11	4,342	201.9
„ N	42	4,656	197.9
„ JO	15	3,686	175.3
„ J*	27	3,556	172.8
„ L*	30	3,665	169.5
„ AI	16	4,061	164.2
„ AA	18	3,778	155.0
„ XR	45	3,123	152.1
„ P*	32	3,614	146.7
„ AY	11	1,909	83.6
„ K	2	1,410	68.0

MARGARET RIVER I.

Herd.	No. of Cows.	Milk Average gals.	Butter-fat Average lb.
Wood, C. W. A.	9	5,748	257.9
Walliss, S.	23	5,716	236.7
Fisher, A.	26	6,232	234.6
Herd C*	22	4,812	232·1
„ B*	21	4,477	231.9
„ K*	22	5,232	219.9
„ XV	31	5,486	219.4
„ A*	21	4,818	214.8
„ T	12	4,898	214.6
„ D	41	5,062	209.9
„ S	24	4,602	189.3
„ W....	13	4,166	189.4
„ G	19	4,125	181.8
„ R*	27	4,725	180.5
„ P	16	4,287	175.0
„ E*	18	3,774	167.3
„ F*	39	3,871	165.1
„ CZ	14	3,758	149.1
„ C	10	3,042	131.4

KARRIDALE D*

Herd.	No. of Cows.	Milk Average gals.	Butter-fat Average lb.
Fisher, V.	36	4,597	219.6
Moss, J.	10	4,094	198.8
Dennis, J.	26	4,436	189.8
Herd Y*	36	4,402	184.0
„ R	23	4,194	182.8
„ KZ	11	3,861	181.0
„ F	19	3,467	177.8
„ E	20	4,468	171.1
„ O	24	3,095	148.5
„ CF	30	3,114	148.3
„ M	18	3,567	144.1
„ A	22	3,203	134.5
„ KR	11	2,827	126.6
„ G	24	3,131	124.8
„ B	29	2,941	120.9
„ D	33	2,900	115.8
„ K	23	2,633	113.7
„ KI	7	2,411	98.0
„ C	17	2,466	96.1
„ H	19	2,150	75.5
„ E*	16	1,623	58.4
„ N	12	1,296	56.6

METRICUP F

Herd.	No. of Cows.	Milk Average gals.	Butter-fat Average lb.
Mutimer, A. S.	23	5,315	249.0
Simpson, J.	19	5,148	229.8
Murdoch, N. L.	28	4,469	198.6
Herd H	23	3,919	188.0
„ D	23	4,322	176.6
„ A	30	4,339	172.9
„ C	25	4,034	172.4
„ E*	15	4,009	170.1
„ W....	25	4,032	165.6
„ K*	57	4,098	163.7
„ O	22	3,786	146.9
„ L*	25	3,501	142.0
„ T	41	3,626	139.8
„ X	34	3,386	136.5
„ B	38	3,227	115.6
„ R*	16	2,787	110.4

* Inverted.

MT. BARKER S.

Herd.	No. of Cows.	Milk Average. gals.	Butter-fat Average. lb.
Stain, H. W.	10	5,765	295.0
Pugh, F. R. H & Son	57	5,638	239.4
Cluett & Sons	41	4,919	215.5
Herd B	47	5,062	208.7
,, E	45	4,999	205.3
,, U	48	5,115	202.0
,, P	38	4,355	199.8
,, Z	39	4,346	196·0
,, Y	26	3,957	195.3
,, A*	25	4,743	190.8
,, W....	24	4,032	185.7
,, GA	30	3,634	178.9
,, T	38	4,633	174.7
,, F	41	3,847	158.7
,, I	34	3,354	155.4
,, C*	34	3,415	152.5
,, DA	17	3,053	151.5
,, HR	19	3,774	145.3
,, U*	20	3,982	136.0
,, A	23	2,611	112.1

NORTHCLIFFE X.

Herd.	No. of Cows.	Milk Average. gals.	Butter-fat Average. lb.
Sanders, K. & Son	27	6,432	331.0
Heathcote, C. and V.	27	5,963	289.7
Riising, K.	27	6,185	278.5
Herd B	31	5,698	263.3
,, B*	27	5,217	248.0
,, J	16	5,411	242.2
,, A*	19	4,178	209.6
,, T	23	4,605	208.0
,, U	38	4,338	207.8
,, E	25	4,415	205.7
,, M	31	4,191	200.3
,, N	29	4,125	189.0
,, H	20	4,903	187.7
,, W....	23	3,835	185.4
,, Q*	30	3,914	183.6
,, Z	23	4,204	182.2
,, C	31	3,901	182.1
,, I	24	3,964	181.3
,, F*	22	3,512	177.9
,, P	30	3,236	147.7
,, K*	35	2,786	137.5
,, D*	29	2,908	127.2

NANNUP U.

Herd.	No. of Cows.	Milk Average. gals.	Butter-fat Average. lb.
Knapton, V. J.....	61	6,117	307.8
Jarvis, G.	28	5,889	267.8
Scott, V.	24	7,774	266.2
Herd Q	52	6,292	255.3
,, A*	71	6,433	243.6
,, F	36	5,967	235.7
,, T	24	4,300	212.8
,, CA	28	5,399	208.9
,, CB	32	4,536	208.0
,, I	26	4,410	206.2
,, BA	21	4,063	198.0
,, AB	21	3,713	192.3
,, BM	42	3,727	189.0
,, CG	19	3,978	182.3
,, AD	24	4,396	181.4
,, BH	51	3,628	174.0
,, R	24	4,048	157.3
,, V	20	2,510	147.4
,, BF	17	2,872	137.1
,, CF	17	2,560	115.1

PEMBERTON.

Herd.	No. of Cows.	Milk Average. gals.	Butter-fat Average. lb.
Della, D.	27	6,121	269.8
Palfrey, G. G.	15	5,642	232.9
Plackett, A.	19	5,150	224.8
Herd A	24	4,618	210.6
,, D	33	4,861	209.3
,, M	24	4,728	207.3
,, W....	22	4,899	188.3
,, E	11	3,859	184.2
,, AH	24	4,978	175.5
,, AC	24	4,219	172.4
,, AA	16	4,201	170.2
,, AB	23	4,359	163.3
,, L	17	3,573	162.7
,, Y	36	3,729	159.3
,, C	30	3,391	144.9
,, Z	10	3,685	144.6
,, N	27	3,123	133.6
,, AI	34	3,225	127.8
,, AE	19	3,508	126.1
,, AG	46	2,830	118.3
,, AJ	14	2,369	95.3

* Inverted.

PINJARRA A.

Herd.	No. of Cows.	Milk Average. gals.	Butter-fat Average. lb.
Abbott, T.	23	5,451	276.6
Beacham, R.	56	6,431	267.0
Pailthorpe, C.	30	5,976	230.9
Herd Z	56	5,643	230.2
„ A*	46	5,501	229.0
„ P*	30	5,482	228.1
„ T	20	5,277	226.6
„ X	13	5,439	208.0
„ U	41	4,849	201.2
„ Y*	35	4,611	193.3
„ K	30	4,357	181.0
„ F	37	4,728	172.9
„ T*	29	4,125	172.6
„ L*	19	3,843	158.4
„ R*	20	3,928	146.0
„ O	20	3,460	143.9
„ F*	12	3,118	118.2

RUABON E.

Herd.	No. of Cows.	Milk Average. gals.	Butter-fat Average. lb.
Semmens & Sons, W. H.	48	6,848	294.3
House, M. L.	24	8,221	291.4
Glendon, J. E.	40	6,521	266.5
Herd D	50	6,297	247.3
„ Z	39	5,753	245.9
„ G	54	6,321	244.0
„ J*	33	6,209	242.7
„ A*	12	5,517	239.7
„ W....	37	5,861	236.8
„ E	32	5,348	214.7
„ V*	14	4,638	206.1
„ N	28	5,212	202.9
„ K*	20	5,073	202.3
„ Q*	31	4,913	198.4
„ T*	45	5,598	190.5
„ H	41	4,738	189.6
„ I	50	3,906	180.8
„ DB	40	4,637	173.2
„ L*	36	4,176	160.0
„ X	45	4,061	154.5
„ G*	26	3,417	149.8
„ U*	27	3,695	149.4

ROSA BROOK J.

Herd.	No. of Cows.	Milk Average. gals.	Butter-fat Average. lb.
Ganes, W.	22	5,464	248.0
Mills, G. P.	21	4,539	236.1
McSwain, E.	33	5,044	226.1
Herd AM	14	4,404	220.8
„ X	45	4,269	203.7
„ AF	32	4,690	199.5
„ Y	37	4,083	197.3
„ C*	36	3,874	192.8
„ AO	17	4,064	191.2
„ U	46	4,370	190.3
„ L	20	4,071	185.1
„ AE	30	3,319	168.7
„ E	27	3,246	160.4
„ AL	13	3,370	158.2
„ AJ	21	3,841	157.9
„ AN	12	3,307	131.2
„ AP	3	3,410	121.3
„ AK	19	2,356	115.2

SCOTSDALE Y.

Herd.	No. of Cows.	Milk Average. gals.	Butter-fat Average lb.
Smith, W. J.	14	6,816	329.8
Stephens, J. T....	23	5,479	250.2
Hick, E. F.	20	5,153	238.2
Herd G	14	5,100	235.3
„ E*	25	5,072	232.7
„ H	24	5,175	224.3
„ I	17	4,050	221.5
„ N	25	4,767	216.4
„ R	18	4,260	208.4
„ B	16	4,000	202.3
„ S	10	3,984	199.2
„ K*	27	4,112	191.4
„ J*	26	4,368	180.7
„ T	37	4,047	179.5
„ Z	24	3,968	177.1
„ D	17	3,601	172.2
„ T	15	3,703	169.9
„ C*	22	3,651	168.5
„ R*	26	3,582	151.5
„ U	8	3,230	149.6
„ K	26	3,230	142.0
„ V	17	3,543	141.5
„ X	41	2,667	117.8
„ V*	36	2,456	113.7
„ P	23	2,101	87.6

* Inverted.

VASSE V.

Herd.	No. of Cows.	Milk Average. gals.	Butter-fat Average. lb.
Avery, H. P.	37	5,841	251.1
Reading, R. P.	38	5,838	233.6
McGregor, R.	21	5,124	232.8
Herd C*	28	6,044	231.8
,, F	27	4,508	210.8
,, T	37	4,547	207.0
,, EB	44	4,936	202.6
,, Q	47	4,732	193.8
,, AB	25	4,336	185.6
,, K*	22	3,266	174.8
,, A	35	3,786	174.2
,, G*	17	3,834	171.1
,, W	33	3,938	167.1
,, F*	42	4,200	163.9
,, L*	22	3,804	160.8
,, Q	27	3,478	144.2
,, D*	26	3,377	142.1
,, K	62	2,401	114.5
,, V	13	2,284	100.9

WALPOLE B.

Herd.	No. of Cows.	Milk Average. gals.	Butter-fat Average. lb.
Palmer, F.	15	5,456	284.7
Burton, P.	25	5,551	281.7
Burton, A.	28	5,577	259.9
Herd D	21	5,376	240.2
,, K	27	4,221	206.9
,, S	15	4,559	206.5
,, T*	25	4,342	200.3
,, A	17	4,138	199.3
,, F	18	4,054	184.3
,, N	23	3,977	183.5
,, H	38	3,919	180.5
,, P	20	4,199	177.3
,, B	36	3,939	176.7
,, U	26	3,691	174.5
,, G	23	3,750	168.5
,, Q	35	3,682	167.3
,, C	17	3,640	162.4
,, E	32	3,388	153.2
,, M	19	3,062	143.7
,, J	15	2,900	117.0
,, O	13	2,369	116.1
,, L	15	2,305	101.3

WILGA B.

Herd.	No. of Cows.	Milk Average. gals.	Butter-fat Average. lb.
Thompson, J.	17	7,626	298.5
Chapman, K.	27	5,455	270.6
Wright, R.	14	6,867	265.2
Herd D	24	4,844	246.2
,, A	24	5,368	244.2
,, H	22	4,755	223.3
,, M	25	5,428	222.6
,, Z	16	5,590	215.0
,, N	10	4,391	198.4
,, O	16	4,293	195.6
,, B	27	3,989	189.6
,, J	24	5,206	188.7
,, L	33	4,578	186.4
,, K*	34	3,929	173.4
,, Y	15	4,620	169.8
,, B*	12	2,491	166.1
,, W	17	3,622	161.4
,, P	23	3,695	159.8
,, E	11	3,486	156.8
,, I	14	3,318	142.9
,, A*	11	3,052	132.8
,, G	52	3,080	111.1

* Inverted.

BACONER CARCASE COMPETITION, 1950.

M. Cullity, Superintendent of Dairying.

K. M. Hope, Agricultural Adviser.

THE Australian Meat Board and the local committee again conducted the competition for 1950, the third to be held since the inauguration of the competition in 1948.

The improvement in quality of entries over these three years has been gratifying, but all concerned look forward to a greater number of entries from all parts of the State in the 1951 competition.

As in previous years, the State was divided into six zones, and the following entries were received from each zone:—

Zone 1. 10 entries, 2 overweight.

Zone 2. 33 entries, 4 overweight, 1 underweight.

Zone 3. 17 entries, 2 overweight, 2 underweight.

Zone 4. 1 entry, 1 overweight.

Zone 5. 2 entries.

Zone 6. 6 entries.

Total: 69 entries, 9 overweight, 3 underweight.

Over all, the number of entries showed a slight improvement on 1949. The great majority of the entries were from the dairy belt (Zones 1, 2 and 3) as in previous years. The response from the other zones is particularly disappointing when it is considered that over 40 per cent. of the pig population in the State is in these zones.

In the 1950 competition, as in 1949, each entry consisted of one pig only and a competitor was allowed a maximum of two entries.

Entries are limited to pigs sired by a pure bred boar as a means of encouraging farmers generally to use boars of suitable type. Such boars, when pure bred, are more likely than others to transmit their desirable characteristics to their progeny.

In the 1948, 1949 and 1950 competitions, entries have been limited to the 120–180 lb. chilled dressed weight range corresponding to about 160–240 lb. liveweight range. This weight range is regarded by the Australian Meat Board and the local committee as that most suited to local and export baconer requirements.

It is indeed unfortunate that 12 of the 69 entries were ineligible to compete, nine being overweight and three underweight. However, the two-month period for receipt of competition pigs at the works should be sufficient to enable the prospective competitors to prepare entries that would achieve a finished carcase within the set weight range

TABLE I.

BACONER CARCASE COMPETITION, 1950.

Owner.	Breed of Entry.	Principal Feeds, etc.	Chilled Weight, lb.	By Inspection.			By Measurement.				Total.
				Ham.	Shoulder.	Streak.	Eye Muscle.	Back Fat.	Body Length.	Leg Length.	
		ZONE 1.	Max.	(8)	(7)	(12)	(28)	(20)	(20)	(5)	(100)
R. Westcott, Keysbrook	Berkshire - Berkshire × Tamworth	Skim milk, pollard, wheatmeal, green feed	174	7	6	11	28	19	6	5	82
A. J. White & Sons Mandogalup	Tamworth - Berkshire	Crushed wheat, barley, skim milk, green feed	180	7	6	10	23	18	11	5	80
R. Westcott, Keysbrook	Berkshire - Large White × Tamworth	Skim milk, pollard, wheatmeal, green feed	163	6	5	10	25	18	11	4	79
C. D. Pailthorpe, Pinjarra	Tamworth - Large White cross	Crushed wheat, skim milk, pollard, pasture	156	4	5	8	17	20	18	5	77
R. R. Piercy, Melville	Large White-Large White cross	Crushed wheat, meatmeal, buttermilk	150	5	6	8	22	12	16	....	69
C. D. Pailthorpe, Pinjarra	Tamworth - Berkshire	Crushed wheat, skim milk, pollard, pasture	144	5	4	10	18	12	8	5	62
A. W. and A. A. Blomfield, Kewdale	Tamworth - Large White cross	Swill, crushed wheat	160	4	6	6	21	16	7	2	62
R. R. Piercy, Melville	Large White-Large White cross	Crushed wheat, meatmeal, buttermilk	139	4	6	6	17	7	20	....	60
A. J. White & Sons, Mandogalup	Large White-Berkshire	Crushed wheat, barley, skim milk, green feed	200*	....	....	....	....	....	....	....	....
A. W. and A. A. Blomfield, Kewdale	Tamworth cross....	Swill, crushed wheat	190*	....	....	....	....	....	....	....	....
		ZONE 2.									
J. Jarvis, Donnybrook	Large White-Berkshire	Milk, pollard, crushed wheat, green feed, minerals	152	6	6	10	17	20	20	4	83
R. L. Poad, Dardanup	Berkshire - Large White × Tamworth	Pollard, crushed wheat, skim milk, pasture	127	6	2	8	25	18	18	5	82
W. E. Leiper, Cowaramup	Large White-Berkshire	Pollard, skim milk, crushed wheat	167	7	5	8	21	19	10	5	75
Field Bros., Lowden	Tamworth - Berkshire × Large White	Crushed wheat, pollard, skim milk, grazing	161	5	4	8	20	20	12	5	74
Field Bros., Lowden	do. do.	do. do.	154	6	5	11	16	14	17	5	74
D. G. Noon, Lowden	Tamworth - Berkshire	Crushed wheat, pollard, skim milk, meatmeal, apples	133	5	5	8	22	18	10	5	73
A. T. Wicksteed, Dardanup	Berkshire - Tamworth × Berkshire	Skim milk, pollard, crushed wheat, grazing	171	5	3	7	26	15	15	2	73
J. M. Carter, Boyup Brook	Tamworth - Berkshire	Skim milk, crushed wheat, pasture	140	6	6	9	19	17	11	5	73
J. M. Carter, Boyup	do. do.	do. do.	173	5	5	8	27	16	7	4	72
Austin Bros., Jardee	Berkshire	Crushed wheat, meatmeal, skim milk, pasture	161	4	3	6	28	15	12	3	71
R. L. Poad, Dardanup	Tamworth - Large Black × Tamworth	Skim milk, pollard, crushed wheat, grazing	161	5	4	11	28	16	3	3	70
B. W. Starkie, Manjimup	Berkshire - Large White	Skim milk, wheat grazing, bonemeal	121	2	4	9	17	19	16	3	70
J. W. Hutchins, Northcliffe	Large White	Skim milk, crushed wheat, pollard, green feed	159	5	6	8	15	17	19	....	70
W. E. Leiper, Cowaramup	Large White-Berkshire	Skim milk, pollard, wheat	162	7	6	10	15	19	8	4	69
H. H. Daniels, Greenbushes	Large White	Skim milk, concentrates, bonemeal, pollard, bran, green roughage	160	6	3	8	22	16	8	5	68
A. E. Poad, Dardanup	Tamworth - Large Black	Skim milk, pollard, crushed wheat	161	5	5	9	25	16	6	2	68

* Overweight.

TABLE I—*continued.*

BACONER CARCASE COMPETITION, 1950—*continued.*

Owner.	Breed of Entry.	Principal Feeds, etc.	Chilled Weight lb.	By Inspection.			By Measurement.				Total.
				Ham.	Shoulder.	Streak.	Eye Muscle.	Back Fat.	Body Length.	Leg Length.	
		Zone 2.	Max.	(8)	(7)	(12)	(28)	(20)	(20)	(5)	(100)
H. Noon, Lowden	Tamworth - Berkshire	Crushed wheat, pollard, skim milk, meatmeal, cull apples	145	5	6	7	20	18	8	3	67
A. E. Dunkley, Capel	Berkshire - Tamworth × Berkshire	Buttermilk, crushed wheat, grass	164	7	6	11	14	20	6	3	67
A. E. Poad, Dardanup	Tamworth - Large Black	Skim milk, crushed wheat, pollard	128	4	5	7	18	19	13	1	67
D. G. Noon, Lowden	Tamworth - Berkshire	Crushed wheat, pollard, skim milk, meatmeal, cull apples	145	4	4	5	23	17	9	4	66
H. Noon, Lowden	do. do.	do. do.	125	3	5	8	19	12	14	5	66
A. E. Dunkley, Capel	Berkshire - Tamworth × Berkshire	Buttermilk, crushed wheat, grass	167	6	5	7	15	18	10	4	65
H. T. Dunkley, Capel	do. do.	do. do.	167	6	5	9	18	18	4	5	65
J. Jarvis, Donnybrook	Large White-Tamworth	Milk, pollard, crushed wheat, green feed, minerals	156	5	4	8	23	7	9	3	59
H. T. Dunkley, Capel	Berkshire - Tamworth × Berkshire	Buttermilk, crushed wheat, grass	167	6	3	7	19	12	5	5	57
J. W. Hutchins, Northcliffe	Large White	Skim milk, crushed wheat, pollard, green feed	134	3	6	8	3	18	17	....	55
A. H. Noon, Lowden	Tamworth - Berkshire	Crushed wheat, pollard, skim milk, meatmeal, cull apples	139	4	5	5	22	7	5	4	52
A. H. Noon, Lowden	do. do.	do. do.	135	4	5	6	14	7	7	5	48
E. Guy, Wilga	Berkshire	....	188*	....	....	....	....	....	....	....	....
M. J. Yates, Witchcliffe	Large White	....	186*	....	....	....	....	....	....	....	....
A. W. Dempster, Cowaramup	Large White-Berkshire	....	188*	....	....	....	....	....	....	....	....
A. W. Dempster, Cowaramup	do. do.	....	191*	....	....	....	....	....	....	....	....
A. T. Wicksteed, Dardanup	Berkshire - Tamworth × Berkshire	....	112*	....	....	....	....	....	....	....	....
		ZONE 3.									
S. R. King, Denmark	Tamworth - Berkshire	Skim milk, crushed wheat, pollard, maize	153	7	5	8	25	19	12	4	80
S. R. King, Denmark	do. do.	do. do.	148	6	4	7	19	18	14	5	73
Denmark Research Station, Denmark	do. do.	Buttermilk, crushed wheat	162	6	4	9	20	19	12	3	73
R. F. Blight, Denmark	Tamworth - Tamworth × Berkshire	Milk, crushed wheat, dicalcic lick, green feed	147	5	4	6	21	18	12	5	71
Hawley Bros., King River	do. do.	Milk, crushed wheat	172	6	5	9	19	17	7	5	68
E. W. Poole, Lower Kalgan	Large White-Berkshire	Skim milk, pollard, grazing	179	7	5	8	25	15	2	5	67
F. R. H. Pugh & Son, Narrikup	Berkshire - Tamworth	Skim milk, crushed wheat	151	6	5	9	18	17	7	5	67
R. N. Playne, King River	Berkshire - Large White	do. do.	173	2	3	9	22	20	6	5	67
Denmark Research Station, Denmark	Berkshire	Buttermilk, crushed wheat	166	4	5	10	21	20	3	3	66
R. F. Blight, Denmark	do.	Crushed wheat, skim milk, dicalcic lick, green feed	166	7	3	8	18	14	7	5	62
R. W. Townsend, Narrikup	Berkshire - Large Black	Crushed wheat, skim milk	179	4	4	10	24	....	....	5	47

* Overweight.

TABLE I—*continued.*

BACONER CARCASS COMPETITION, 1950—*continued.*

Owner.	Breed.	Principal Feeds, etc.	Chilled Weight.	By Inspection.			By Measurement.				Total.
				Ham.	Shoulder.	Streak.	Eye Muscle.	Back Fat.	Body Length.	Leg Length.	
			Cb.								
F. R. H. Pugh & Son, Narrikup	Berkshire - Tamworth	Skim milk, crushed wheat	150	4	3	8	15	.....	8	5	43
E. E. Lange, King River	Tamworth	Crushed wheat, buttermilk	163	5	5	6	15	....	4	5	40
R. W. Townsend, Narrikup	Berkshire - Large Black	....	187*	....	....	....	....	....	....	....	....
E. W. Poole, Lower Kalgan	Large White-Berkshire	....	185*	....	....	....	....	....	....	....	....
J. L. Gilbert, Kendenup	Large Black	....	110†	....	....	....	....	....	....	....	....
J. L. Gilbert, Kendenup	do.	....	110†	....	....	....	....	....	....	....	....
		ZONE 4.									
N. A. Stone, Northam	Large White-Berkshire	....	184*	....	....	....	....	....	....	....	....
		ZONE 5.									
S. Duffield, Darkan	Berkshire	Crushed wheat and barley, meatmeal, grazing	151	7	6	7	19	19	14	5	77
A. E. Martin, Arthur River	Tamworth - Tamworth × Berkshire	Oats and barley, meatmeal, salt, dicalcic lick, grazing	178	5	6	7	24	7	8	3	60
		ZONE 6.									
D. Tolerton, Kellerberrin	Large White-Berkshire × Large White	Crushed wheat and oats, meatmeal, bran, pollard, free grazing	153	6	6	8	26	16	19	4	85
D. Tolerton, Kellerberrin	do. do.	do. do.	167	4	6	9	24	18	18	3	82
D. G. Elliott, Lake Grace	Berkshire	Gristed barley, oats, wheat, skim milk, when available, grazing	152	6	4	9	28	12	11	5	75
R. L. Bloomfield, Dalwallinu	Tamworth - Berkshire	Ground wheat and barley, meatmeal, boiled rabbit	133	6	3	7	22	10	10	5	63
D. G. Elliott, Lake Grace	Berkshire	Gristed barley, oats, wheat, skim milk, grazing	147	6	4	9	28	7	7	1	62
R. L. Bloomfield, Dalwallinu	Tamworth - Berkshire	Ground wheat and barley, meatmeal, boiled rabbit and kangaroo	138	4	3	6	21	4	7	5	50

* Overweight. † Underweight.

A full description of the method of carcase appraisal is given with the results of the 1948 competition published in the June, 1949, issue of this Journal (also re-printed as leaflet 975).

Carcases were received from July 10th to September 13th, judging taking place on September 22nd.

The judges were Messrs. H. A. Watson, G. E. Fewster, and M. Cullity assisted by officers of the Dairy Branch. At the demonstration held at the bacon factory on the Thursday of Show week, prizes won were presented by Mr. W. J. Dawkins, of South Australia, a producers' representative on the Australian Meat Board.

STATE CHAMPION 1950.

Mr. D. Tolerton's entry.

Photo. by courtesy Australian Meat Board.

DISCUSSION OF THE RESULTS.

General.

In any study of these figures it is important to remember that this system of appraisal is designed for the perfect carcase. In practice a carcase scoring 60 points or more is considered to be of merit.

Only nine of the 57 eligible entries scored less than 60 points, 25 entries scored 70 points or more, seven excellent pigs of this group scoring 80 points or more.

The average score of 67.52 points was an improvement on the previous two competitions the average points scored in each section in the three competitions are set out in Table 2.

Mr. D. Tolerton of Kellerberrin won the State championship with a score of 85 points. Details of the entries and points scored by each carcase in each section of the judging under the Smithfield system are given in Table 1.

TABLE 2.

COMPARISON OF AVERAGE POINTS SCORED IN EACH SECTION IN THE 1948, 1949 AND 1950 COMPETITIONS.

Competition.	No. of Entries Eligible.	Ham.	Shoulder.	Streak.	Eye Muscle.	Back Fat.	Body Length.	Leg Length.	Total.
Max. Points.	....	8	7	12	28	20	20	5	100
1948	37	6·35	5·50	9·29	16·73	14·57	9·14	3·43	65·11
1949	52	5·38	5·04	7·90	15·19	14·67	9·21	3·08	60·52
1950	57	5·21	4·70	8·14	20·64	14·74	10·25	3·84	67·52

The judges indicated that the decline in points allotted for visual aspects, ham, shoulder and streak, should not be taken as a sign of poorer quality. The standard for allocation of points was adjusted in close conformity with the photographic guide provided for judging on the Smithfield system.

TABLE 3.

BACONER CARCASE COMPETITION, 1950.

Percentage of Maximum Points according to Breed of Boar.

Breed of Boar.	No. of Eligible Entries.	Average Weight Carcase.	Ham.	Shoulder.	Streak.	Eye Muscle.	Back Fat.	Body Length.	Leg Length.	Total.
Maximum pts.	....	....	8	7	12	28	20	20	5	100
		lb.								
Berkshire	20	158·2	66·2	59·2	69·3	76·6	74·7	44·5	83·0	67·4
Tamworth	25	151·5	65·5	71·6	65·0	73·8	71·4	48·0	82·3	66·3
Large White....	12	156·5	67·7	77·4	68·7	68·4	78·3	69·2	55·0	70·1

Carcases over weight—2 Berkshire, 1 Tamworth, 6 Large White.

Carcases under weight—1 Berkshire, 2 Large Black.

TABLE 4.

PERFORMANCE OF BREEDS AND CROSS BREEDS

Percentage of Maximum Points.

Breed.	No. of Entries.	Average Weight.	Ham.	Shoulders.	Streak.	Eye Muscle.	Back Fat.	Body Length.	Leg Length.	Total.
Maximum pts.	....	....	8	7	12	28	20	20	5	100
		lb.								
Berkshire pure bred	7	155·7	69·6	59·2	65·5	83·2	75·0	47·1	77·1	69·1
Berkshire-Tamworth	2	150·5	62·5	57·1	70·8	58·9	42·5	37·5	100·0	55·6
Berkshire-Tamworth x Berkshire	5	167·2	75·0	62·9	68·3	65·7	83·0	40·0	76·0	65·4
Berkshire-Berkshire x Tamworth	1	174·0	87·5	85·7	91·7	100·0	95·0	30·0	100·0	82·0
Berkshire-Large White	2	147·0	25·0	50·0	75·0	69·6	97·5	55·0	80·0	68·5
Berkshire-Large White x Tamworth	2	145·0	75·0	50·0	75·0	89·3	90·0	72·5	90·0	80·5
Berkshire-Large Black	1	179·0	50·0	57·1	53·3	85·7	....	....	100·0	47·0
Tamworth pure bred	1	163·0	62·5	71·4	50·0	53·6	....	20·0	100·0	40·0
Tamworth-Berkshire	15	146·2	64·2	66·7	62·8	74·8	70·7	48·3	89·3	66·5
Tamworth-Tamworth x Berkshire	2	175·0	68·8	78·6	66·7	76·8	60·0	37·5	80·0	64·0
Tamworth-Berkshire x Large White	2	157·5	68·8	64·3	79·2	64·3	85·0	72·5	100·0	74·0
Tamworth-Large White Cross	2	158·0	50·0	78·5	58·3	67·9	90·0	62·5	70·0	69·5
Tamworth-Large Black	2	144·5	56·3	71·4	66·7	76·0	87·5	47·5	30·0	67·5
Tamworth-Large Black x Tamworth	1	161·0	62·5	57·1	91·7	100·0	80·0	15·0	60·0	70·0
Large White pure bred	3	151·0	58·3	71·4	66·7	47·6	85·0	73·3	33·3	64·3
Large White-Large White Cross	2	144·5	56·3	85·7	58·3	69·6	47·5	90·0	....	64·5
Large White-Tamworth....	1	156·0	62·5	57·1	66·6	82·1	35·0	45·0	60·0	59·0
Large White-Berkshire	4	165·0	84·4	78·6	75·0	69·6	91·3	50·0	90·0	73·5
Large White-Berkshire x Large Whit	2	160·0	62·5	85·7	70·8	89·3	85·0	92·5	70·0	83·5

Carcases Overweight—1 Berkshire pure bred, 1 Tamworth Cross, 5 Large White-Berkshire, 1 Large White, 1 Berkshire-Large Black.

Carcases Underweight—1 Berkshire-Tamworth x Berkshire, 2 Large Black.

Breeds.

The results are analysed in Tables 3 and 4 according to the sire and breed respectively. However, it must be borne in mind that the small numbers of each breed or cross and the unknown factor of variation due to husbandry practices make it impossible to draw valid conclusions as to the best breed from these results.

As all the three major breeds, Berkshire, Tamworth and Large White are represented by high scoring animals, it is reasonable to deduce that within the blood in this State of each of these breeds we have strains that will assist us in producing the perfect carcase.

To improve the overall quality of the State's production these strains need to be selected out, improved and spread more widely through the State.

Tamworth, Berkshire and Large White boars sired 25, 20 and 12 respectively of the 57 eligible entries. Those sired by Large White boars had the highest average of 70.1 points, Berkshire averaging 67.4 and Tamworth 66.3 points.

Table 4 should be studied in conjunction with the foregoing as the dams of most of the entries are of different breed or breeds to that of the sire. The boar alone does not determine the characteristics of the carcases of his progeny although with grade sows a pure bred boar usually shows prepotency in passing on his own characteristics.

The entries sired by Berkshire and Tamworth boars were strongest of the three breeds in points scored for eye muscle and leg length. Entries sired by Large White boars averaged the highest score for body length and back fat.

The average age of the 57 eligible entries when killed was 6½ months.

Carcase Quality.

(a) Visual Inspection.—Judging standards were high in the visual examination section no entry scoring the maximum in any of the three sections.

(1) Hams.—The average points scored were slightly below that of the previous competitions at 65 per cent. of the maximum. The Berkshire was prominent in this section, the nine entries scoring seven out of the possible eight points, having from 25 to 100 per cent. Berkshire blood in their breeding.

(2) Shoulders.—The average score at 68 per cent. of the maximum was also slightly below the earlier competitions. The 16 entries scoring six points out of the possible seven were of predominately Berkshire and Large White blood.

(3) Streak.—The average score of 8.14 points was 67 per cent. of the possible maximum. The six entries scoring 10 and the four scoring 11 out of a possible 12 were of predominantly Berkshire and Tamworth blood.

(b) By Measurement.

(1) Eye Muscle.—The average score for eye muscle was high with 73 per cent. of maximum marks. Of the five entries scoring the maximum of 28 points, three were pure bred Berkshire, one a Berkshire-Berkshire x Tamworth and the other a Tamworth-Large Black x Tamworth.

(2) Back Fat.—The average score for back fat was high at 74 per cent. of the maximum. Of the six entries securing the maximum of 20 points, two were crossbreds from Large White and Berkshire pure bred, two were sired by Tamworth boars from a Large White sow in one instance and a Berkshire x Large White sow in the other. Both the other two entries were sired by a Berkshire boar, one entry being pure bred and the other Berkshire-Tamworth.

(3) Body Length.—The average score was 10.25 points, 51 per cent. of the possible marks. In the nine pigs scoring 75 per cent. of the maximum marks and over, the Large White breed is by far the most prominent. There are indications that certain strains of Berkshire and Tamworths have good length. Generally, however this feature is the weakest fo Berkshires.

(4) Leg Length.—With an average score of 3.84 points or 77 per cent. of the maximum, leg length has improved over the three competitions. Twenty-nine entries secured the maximum of five points, the great majority being of the Berkshire or Tamworth breeds and their crosses. Pigs sired by Berkshire and Tamworth boars averaged over 80 per cent. in this section. Pigs sired by Large White boars averaged 55 per cent. of the maximum points.

Feeding.

From the brief details supplied of the feeding practices it is evident that the highest scoring carcases were produced by owners that took care to feed a balanced ration, changing the protein-carbohydrate balance of the ration according to the changing requirements of the growing pig.

It is important that producers remember that the balanced ration is also the most profitable ration to feed as it returns the quickest and most efficient gains.

THE INFLUENCE OF GRAZING GREEN OATS ON THE BUTTERFAT CONTENT OF MILK.

M. Cullity, Superintendent of Dairying.

I. Miller, Agricultural Adviser.

INTRODUCTION.

For many years occasional comments have been made by farmers during the autumn and winter months that, while they get more milk from their cows when turned into fresh young grass, and more particularly oats, they get no more cream. In some cases it has been suggested that even less cream has been obtained. The common belief is that the extremely succulent young grazing has the effect of a physiological watering down of the milk produced. Comments are frequent that the young pasture because of its sappiness is of very little value for butterfat production.

Similar experiences have been reported from other places including reports of experiments suggesting that the real cause of the trouble was the absence of sufficient fibre in the form of roughage in the feed. The absence of this roughage has been suggested as being the cause of rather a dramatic fall in the percentage of butterfat—so much so, that while milk yields remain stationary or even increase there is a net reduction in the yield of butterfat.

In the winter of 1949 a feeding trial was commenced at the Denmark Research Station to determine whether the grazing of young oats has an effect on the butterfat test of milk produced when no additional roughage is supplied.

RESULT.

No significant variation from the normal was observed.

METHOD.

(a) *Cattle Used.*—Although it was originally intended to use three groups—each of four cows, it was found that only two groups could adequately be worked with. This was due to the amount of oats available and also the number of cows having suitable production and at the desirable stage of lactation.

The cows in each group were selected so that the average age, production and test of both groups were about equal.

Group A.—Experimental Group.

	Age when calved.	Date of Calving.
1. No. 304	7 years 9 months	19–5–49
2. No. 433	3 years 2 months	18–1–49
3. No. 444	2 years 9 months	17–12–48
4. No. 446	2 years 8 months	26–1–49

Group B.—Control Group.

1. No. 298	7 years 8 months	27–5–49
2. No. 454	3 years 6 months	24–4–49
3. No. 397	4 years 4 months	1–4–49
4. No. 443	2 years 8 months	12–1–49

(b) *Fodder Supplied.*—The trial was carried out in four stages and during these the two groups were fed as follows:—

Stage.	Group "A"	Group "B"
1	Pasture, Hay, Concentrates (12 days)	Pasture, Hay, Concentrates.
2	Young Oats and Concentrates (14 days)	Pasture, Hay, Concentrates (14 days)
3	Young Oats only (3 days)	Young Oats and Hay (3 days)
4	Pasture and Hay only	Pasture, Hay, Concentrates

(c) *Pasture.*—Fair—in the late stages of the trial the clovers were coming away well.

(d) *Hay.*—Average quality meadow hay fed at the rate of approximately 10 lb. day.

(e) *Concentrates.*—Mixture of crushed wheat, 50 lb.; crushed oats, 40 lb.; linseed meal, 10 lb., and fed at the rate of 3 lb. per gallon of milk (approx.).

(f) *Oats.*—A total acreage of three acres were grazed during the trial.

The oats were from 6in.-12in. high and succulent. In one paddock of approximately one acre the oats yellowed off in patches due to—as yet—an undetermined factor. This paddock was used during the first week of the experimental period only.

Bracken fern and rushes were present in two of the day paddocks and, although the cows were occasionally seen to consume some of these, the total intake of roughage in this form must be taken to be negligible.

(g) *Health of the Cows.*—Although the cows in Group "A" became very loose whilst on the oats, this was not excessive and the general health of these animals was unimpaired. They still chewed their cud and there was no evidence of depraved appetite.

Factors which also must be recognised were the reactions of the individuals to being separated from the remainder of the herd and to the monotony of continuously grazing oats alone. It is of interest to note that the fluctuations in the test were greater in the case of the younger cows.

(h) *Testing.*—Samples were taken at each milking and tested separately for butterfat and solids-not-fat. No significant changes in the butterfat and solids-not-fat occurred, however, the day-to-day variation appears rather great.

Data Collected.—Details of the production of milk, the percentage of butterfat and the solids-not-fat for each cow in each group are given in Tables 1, 2 and 3.

The average daily butterfat percentage and the average daily yield for each group are shown in Tables 4 and 5.

The results are summarised in Table 6, while graphs show the trends for the period of the trial for the same aspects.

It will be noticed that there is no significant variation of test or solids not fat in the experimental group throughout the trial. Some variation in the percentage of solids-not-fat occurred in the control group, which received hay throughout the trial and this cannot be explained.

The daily variations in test were noticeably greater in the case of the younger cows, such variations have been attributed by other milkers to incomplete milkng. The practical significance of this variation is seen in the practice of herd testing.

For example, Cow No. 4 Group "B" if tested on the 8th July, would have been credited with 35.280 lb. butterfat for the month. If tested on the 9th July, the amount of butterfat would have been 16.740 lb. for the month. This cow however, is highly temperamental and showed great variability in test.

TABLE 1.

PRODUCTION OF MILK (LB.), A.M. AND P.M., FOR EACH DAY OF TRIAL.

Group " A."—																		
1.	a.m.	24	22	22	22	22	22	22	22	22	21	22	21	20	21	23	20	21	23
		21	23	21	19	28	20	23	21	18	16	17	18						
	p.m.	15	15	16	17	16	16	16	17	16	17	16	16	18	15	14	15	14	15
		16	14	15	9	14	14	14	14	13	13	12	11						
2.	a.m.	13	13	13	13	14	14	13	13	13	13	13	13	13	15	15	14	14	14
		14	13	12	12	13	13	12	13	11	10	10	10						
	p.m.	9	9	10	10	9	9	9	9	9	9	10	10	11	11	10	10	9	11
		10	10	11	11	11	10	9	9	7	8	8	7						
3.	a.m.	11	9	9	9	10	9	12	9	11	9	10	9	10	10	11	10	10	12
		12	11	12	10	11	11	12	8	10	10	7	8						
	p.m.	9	8	7	8	9	10	8	8	7	8	6	9	9	8	8	7	9	6
		6	8	7	9	7	9	7	9	7	8	8	7						
4.	a.m.	9	8	9	8	8	9	9	9	8	9	9	7	9	9	8	10	7	10
		8	7	9	6	9	10	8	9	8	9	7	8						
	p.m.	7	8	7	7	7	6	7	7	7	6	8	7	6	6	7	6	5	8
		6	8	7	10	9	7	8	7	7	5	7	6						
Group " B."—																			
1.	a.m.	22	19	21	20	22	22	22	21	21	21	22	21	21	21	21	22	20	19
		19	22	20	21	20	20	20	18	14	18	7	16						
	p.m.	13	14	14	17	16	16	16	14	14	16	15	15	14	15	15	13	14	14
		12	15	14	15	13	14	13	10	14	12	12	12						
2.	a.m.	17	17	16	20	18	18	18	17	17	15	18	17	17	18	17	16	19	19
		20	19	14	13	19	16	16	16	14	12	19	17						
	p.m.	12	13	13	13	12	12	13	14	14	13	12	11	10	11	12	12	11	11
		10	11	13	10	10	10	12	11	10	9	9	12						
3.	a.m.	12	9	9	11	9	9	11	10	12	9	8	6	9	11	10	10	13	12
		11	12	9	16	11	10	11	9	8	9	8	8						
	p.m.	8	10	8	10	10	7	6	10	7	11	11	9	8	10	12	5	11	7
		8	8	8	8	10	7	8	8	8	9	9	6						
4.	a.m.	9	8	10	10	9	9	9	7	10	9	10	10	10	10	10	9	9	11
		8	10	9	9	10	11	10	8	6	10	12	7						
	p.m.	8	6	7	7	6	7	6	9	7	7	8	7	8	8	6	9	4	6
		7	7	10	9	9	8	7	7	6	8	6	7						

TABLE 2.

BUTTERFAT (PERCENTAGE), A.M. AND P.M., FOR EACH DAY OF TRIAL.

Group " A."—																		
1.	a.m.	4·6	4·3	4·2	5·6	4·5	4·1	4·4	4·0	3·8	3·8	4·8	3·6	4·1	5·0	5·6	3·6	4·8	3·8
		4·4	3·8	4·1	3·2	5·1	4·3	4·6	4·3	3·8	4·0	3·8	4·4	4·5	3·7				
	p.m.	5·3	5·6	5·2	5·8	5·2	5·5	5·3	5·9	5·4	6·8	5·0	5·4	6·1	5·6	5·8	6·1	4·9	5·4
		6·0	6·2	5·8	3·5	7·4	5·2	5·7	5·7	6·9	6·4	5·6	5·8	7·3	....				
2.	a.m.	5·4	5·6	4·7	3·9	5·7	7·5	5·3	5·4	5·4	5·2	4·6	4·6	4·7	5·4	3·8	5·6	5·6	5·2
		5·4	4·8	4·2	4·7	5·3	5·0	4·1	6·0	6·1	5·0	5·0	5·0	5·6	3·6				
	p.m.	6·4	6·0	7·3	6·2	6·1	6·6	6·9	6·0	6·4	6·9	6·9	6·6	8·9	7·3	6·4	6·2	6·2	7·8
		7·0	7·2	8·4	7·8	6·4	7·4	5·5	9·3	8·6	7·1	6·8	7·8	6·6	....				
3.	a.m.	8·1	4·6	5·8	5·0	5·6	5·8	6·7	5·0	6·4	6·0	5·8	4·5	6·0	5·8	5·8	4·5	3·9	8·6
		7·5	5·9	6·7	4·8	6·0	5·4	6·7	3·4	6·4	6·2	5·8	6·0	6·7	5·2				
	p.m.	7·5	8·5	4·8	7·2	8·2	8·0	8·0	7·2	9·0	8·0	8·4	7·6	9·4	6·1	8·2	6·7	8·6	9·0
		6·6	8·4	8·2	8·8	7·8	8·9	7·6	8·0	4·2	6·6	7·9	7·6	8·9	....				
4.	a.m.	6·0	4·5	5·4	5·8	4·6	9·3	5·1	6·4	4·6	7·0	3·7	4·6	7·0	6·0	5·3	6·2	3·3	3·7
		6·2	4·7	5·5	3·2	4·9	7·6	3·4	5·8	4·7	6·6	5·6	5·6	7·7	4·0				
	p.m.	7·8	6·4	8·5	6·6	6·6	6·6	8·0	6·5	8·1	7·7	7·8	6·6	8·2	7·5	10·0	6·6	5·1	10·0
		8·8	10·7	8·4	8·5	10·4	6·4	7·1	7·1	4·2	7·0	6·8	7·9	7·7	....				

TABLE 2.—*continued.*

Group " B."—																			
1.	a.m.	5·7	4·0	4·1	3·3	3·2	4·8	3·6	4·2	3·8	3·7	4·0	3·6	4·2	4·0	3·6	3·6	4·4	3·8
		4·0	3·0	3·7	4·5	3·8	3·5	4·2	3·8	5·0	3·5	3·9	4·3	3·8	4·4				
	p.m.	5·6	5·0	4·8	6·0	5·6	4·8	5·4	5·3	5·6	5·7	6·2	5·6	5·5	5·7	5·0	4·8	7·3	6·0
		4·4	6·6	6·9	6·8	5·8	6·6	5·4	7·2	6·0	6·8	6·1	5·2	....	....				
2.	a.m.	5·1	4·6	4·4	6·4	5·0	6·4	5·4	4·6	4·4	3·4	5·7	4·6	3·9	7·1	4·6	4·1	5·8	5·0
		6·6	4·2	3·9	4·6	7·3	5·8	4·8	3·2	4·9	5·7	7·0	4·8	3·9	5·1				
	p.m.	6·2	7·2	5·8	7·5	8·6	6·8	7·2	6·4	6·3	6·8	6·0	5·1	5·2	7·5	5·5	5·5	5·4	6·8
		6·1	6·6	7·0	8·9	7·4	6·8	6·5	6·9	6·9	7·3	6·7	7·2	8·6	....				
3.	a.m.	5·9	3·4	3·5	3·9	4·2	5·4	4·4	4·	6·1	4·0	5·4	3·0	3·0	5·1	3·6	6·0	3·5	6·2
		5·3	5·2	3·1	5·2	4·6	4·8	4·1	4·4	3·3	3·5	4·2	6·9	4·5	3·2				
	p.m.	6·4	5·5	9·1	8·8	7·0	6·7	5·5	9·5	6·9	8·2	7·4	3·9	6·6	7·9	8·0	5·2	8·2	7·3
		7·0	6·6	3·4	5·5	5·8	6·0	6·3	10·1	8·1	8·3	8·6	8·2	6·8	....				
4.	a.m.	3·6	2·9	5·4	5·6	4·0	10·8	5·4	3·9	5·2	4·9	5·1	5·8	5·6	5·2	5·7	4·0	4·9	7·8
		4·4	6·2	3·4	4·5	5·2	5·6	7·5	4·8	3·6	5·7	6·0	5·0	6·8	6·0				
	p.m.	6·8	5·0	10·0	8·8	3·3	8·2	6·4	6·8	7·4	6·9	8·2	6·4	6·8	7·3	6·1	7·8	5·2	8·7
		9·1	6·6	8·4	7·5	7·0	6·4	8·2	7·0	7·5	11·0	6·5	7·0	7·6	....				

TABLE 3.

SOLID, NOT FAT (PERCENTAGE), A.M. AND P.M., FOR EACH DAY OF TRIAL.

Group " A."—														
1.	a.m.	....	9·84	9·56	7·70	8·68	7·91	8·30	8·21	8·79	8·99	8·18	9·77	9·08
		9·14	7·19	8·99	9·83	9·57	9·16	9·18	9·27	9·78	8·85	9·03	9·16	9·46
		9·18	8·96	9·38	9·16	9·26	9·09							
	p.m.	10·59	9·51	9·15	8·93	8·75	9·06	8·07	11·54	9·16	8·70	8·95	8·55	8·82
		8·54	9·12	8·63	8·96	8·36	8·53	9·49	9·70	8·90	8·87	9·33	8·83	9·61
		8·83	8·61	8·74	8·73	7·62	....							
2.	a.m.	....	10·48	10·22	11·60	9·80	6·84	9·04	9·13	9·91	10·01	10·71	10·51	10·22
		10·10	11·89	9·90	9·90	10·11	10·10	10·31	10·33	10·41	10·39	10·11	10·04	9·89
		9·98	10·11	9·92	9·73	10·09	10·74							
	p.m.	10·26	10·27	9·56	10·07	10·37	8·71	9·44	10·08	9·87	9·51	9·96	9·67	9·51
		9·75	9·87	10·07	10·46	9·83	10·05	10·04	10·19	10·03	10·07	10·23	10·19	10·08
		8·45	9·56	9·86	8·86	9·48	....							
3.	a.m.	....	10·32	10·87	9·92	9·71	8·54	8·22	9·34	9·29	9·11	9·51	9·45	9·31
		9·31	8·93	9·45	9·03	9·23	8·77	9·02	8·99	9·54	9·11	8·94	9·57	10·94
		9·10	9·30	9·31	9·31	9·19	9·33							
	p.m.	10·91	9·33	9·15	9·46	10·21	7·50	9·05	9·07	8·63	9·63	8·65	8·48	8·43
		9·01	8·66	9·19	9·66	7·66	11·03	9·04	8·66	8·83	9·44	8·73	8·87	9·63
		12·66	8·71	8·18	7·51	9·31	...							
4.	a.m.	....	11·39	10·87	10·67	10·71	7·36	11·17	11·43	12·06	10·63	12·77	10·51	10·05
		10·27	10·39	10·27	10·98	10·64	10·59	10·61	10·19	10·56	....	9·45	10·36	10·28
		10·80	10·06	10·48	10·29	10·51	10·34							
	p.m.	11·58	10·07	9·71	11·61	10·26	9·29	8·66	11·52	9·34	10·13	10·22	9·87	10·21
		9·74	8·02	10·84	10·65	9·96	9·99	9·84	9·62	9·71	9·76	10·65	9·95	13·06
		13·43	10·65	10·06	9·54	9·93	....							
Group " B."—														
1.	a.m.	....	10·14	....	9·10	9·39	7·99	10·74	8·39	9·38	9·28	9·36	9·19	8·78
		8·40	8·80	8·61	7·62	9·38	11·89	8·62	9·48	8·09	8·60	9·09	8·59	9·38
		8·56	8·51	8·31	8·49	8·41	8·58							
	p.m.	10·48	9·34	9·34	8·92	8·93	8·18	8·16	10·01	8·93	9·22	8·91	9·13	8·64
		8·83	8·95	8·76	8·00	8·53	8·78	7·93	9·18	8·70	8·34	9·09	9·13	7·91
		8·73	9·47	8·82	9·14	....	....							
2.	a.m.	....	10·51	9·94	9·68	9·53	8·13	10·10	9·54	9·36	9·78	....	10·51	10·44
		10·14	10·13	10·24	10·29	10·11	10·06	10·53	10·44	10·32	9·94	9·70	10·31	10·94
		10·02	10·57	8·69	10·31	10·44	10·59							
	p.m.	11·04	9·66	....	9·36	....	8·70	8·69	9·68	9·97	9·86	10·66	10·21	10·49
		9·36	9·81	10·19	9·89	9·86	9·98	10·06	9·27	9·51	9·84	9·86	9·77	10·54
		11·31	9·36	9·57	9·46	9·61	....							
3.	am.	....	10·16	9·68	9·08	8·78	7·78	9·16	8·10	9·21	10·92	10·29	10·93	11·14
		11·17	11·13	11·05	10·59	9·30	11·36	11·27	9·11	10·88	....	9·54	11·40	11·23
		8·91	11·03	....	10·93	11·39	11·53							
	p.m.	10·07	8·85	9·69	8·64	9·08	8·44	7·29	8·33	8·41	8·46	8·87	8·69	8·71
		8·37	10·21	11·14	11·42	8·78	8·89	11·23	9·19	9·03	10·86	9·31	9·20	8·11
		5·08	8·75	8·45	8·66	8·70	....							
4.	a.m.	....	9·89	9·91	13·19	9·37	7·99	7·58	10·83	8·52	8·86	9·04	8·93	8·74
		8·75	8·83	9·18	11·07	8·86	8·58	8·53	9·19	11·00	8·75	12·19	9·94	7·60
		9·38	8·83	8·73	8·95	10·64	8·92							
	p.m.	....	9·95	....	8·83	8·52	7·69	8·52	7·93	8·10	8·79	8·66	8·71	8·70
		8·39	8·82	8·67	9·05	8·16	7·76	10·64	8·46	8·19	10·63	8·33	8·85	9·08
		8·58	8·19	8·42	8·59	7·32	....							

TABLE 4.

AVERAGE DAILY BUTTERFAT TEST FOR EACH GROUP (PERCENTAGE) FOR EACH DAY OF TRIAL.

Group " A."—

6·0	5·5	5·4	5·6	5·6	6·3	5·8	5·5	5·6	5·7	5·5	5·2	6·3	5·8	6·0	5·4
5·3	6·7	6·1	6·0	6·1	5·4	6·3	6·0	5·4	5·9	5·5	6·0	5·6	6·0	5·8	

Group " B."—

6·0	4·7	5·4	6·0	5·1	6·2	5·3	5·4	5·3	5·2	5·7	4·7	5·0	6·0	4·8	4·8
5·5	5·8	5·6	5·2	5·0	5·7	5·7	5·5	5·5	5·4	5·9	6·5	6·0	5·7	5·4	

TABLE 5.

AVERAGE DAILY YIELD OF MILK FOR EACH GROUP (LB.)

Group " A."—

24·50	23·00	23·20	23·50	23·75	23·75	24·00	23·50	23·25	23·20	23·50	23·20	24·00
23·75	24·00	23·20	22·50	22·50	23·25	23·50	23·20	21·50	25·50	23·50	23·25	22·50
20·25	19·75	19·00	18·75	18·20								

Group " B."—

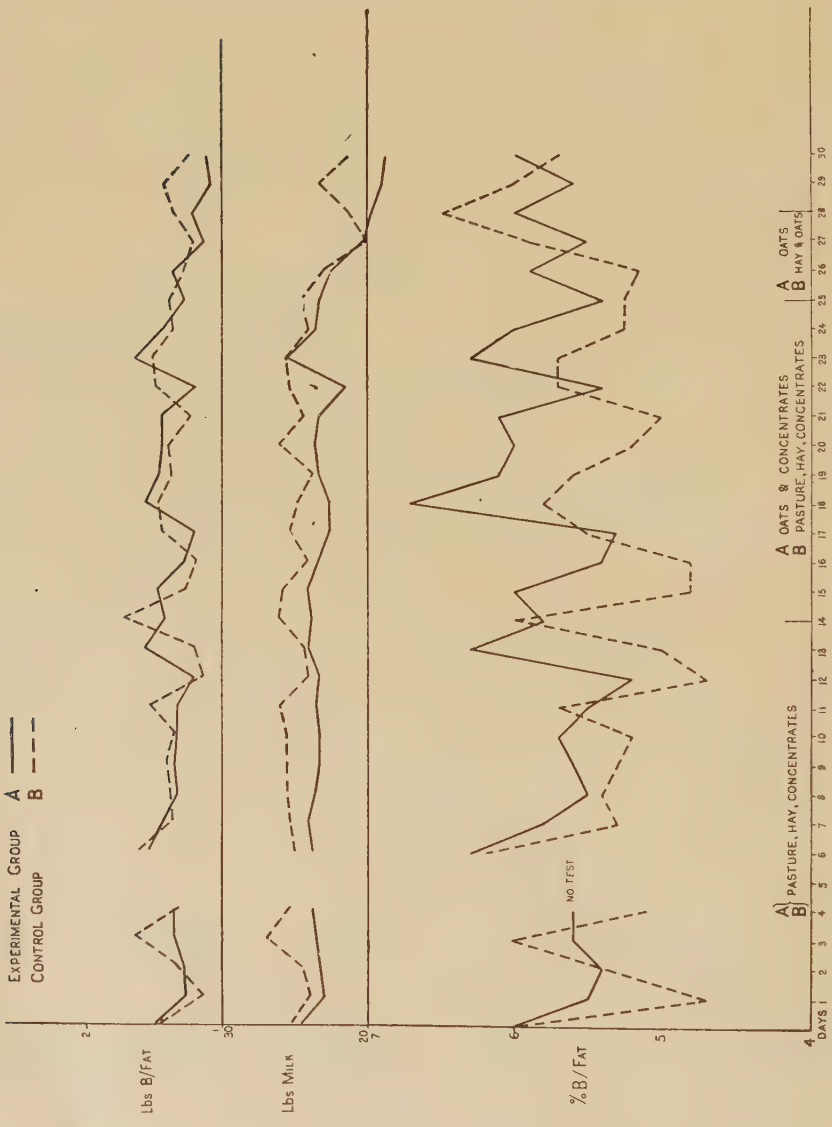
25·25	24·00	24·50	27·00	25·50	25·00	25·25	25·50	25·50	25·50	26·00	24·00	24·25
26·00	25·75	24·00	25·25	24·75	23·75	26·00	24·25	25·25	25·50	24·00	24·50	23·00
20· 0	21·25	23·25	21·25	23·50								

TABLE 6.

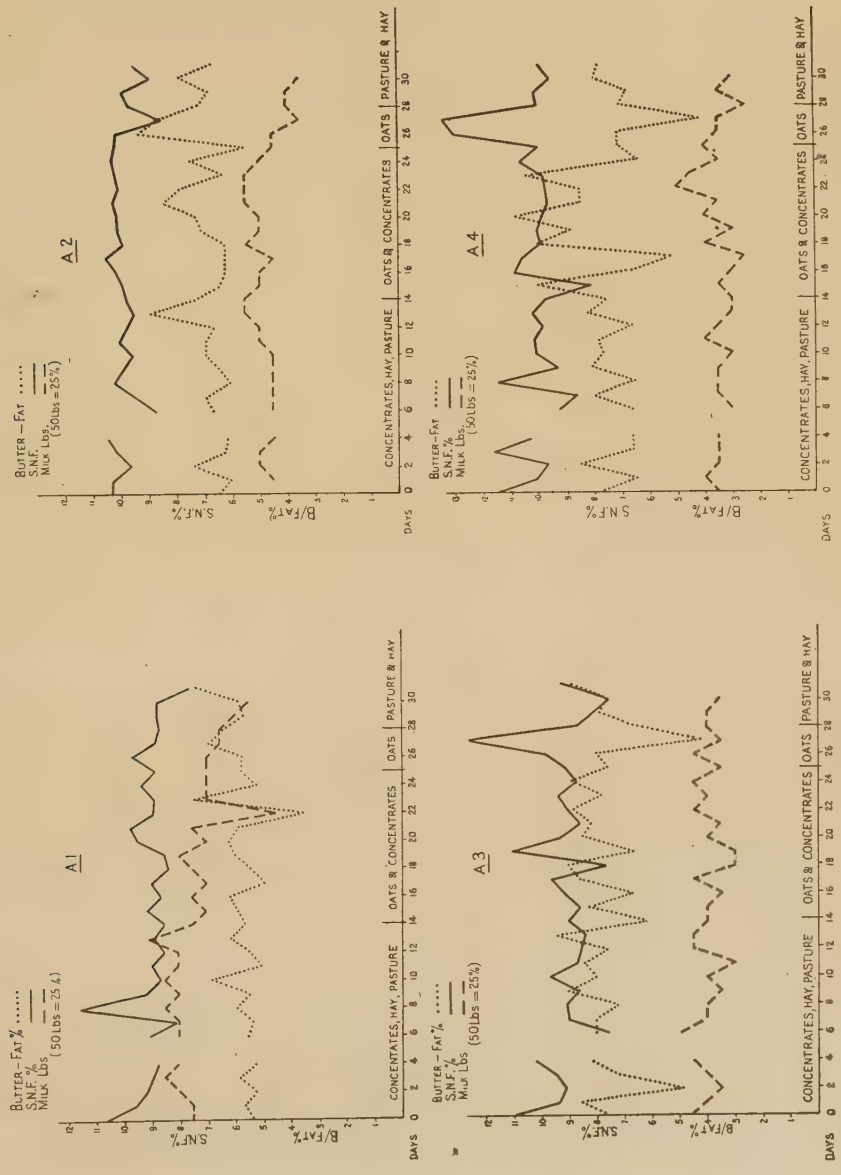
Summary of Average Butterfat (%) Milk Production (lb.) and Solids-not-fat (%).

	Stage 1.	Stage 2.	Stage 3.	Stage 4.
Group A—				
Butterfat .... %	5.70	5.90	5.80	5.80
Milk .... lb.	23.56	23.30	20.83	18.58
Solids-not-fat .... %	9.40	9 50	9.42	9.48
Group B—				
Butterfat .... %	5.40	5.40	5.90	5.70
Milk .... lb.	25.16	24.91	21.40	22.58
Solids-not-fat .... %	8.90	9.16	8.80	9.11

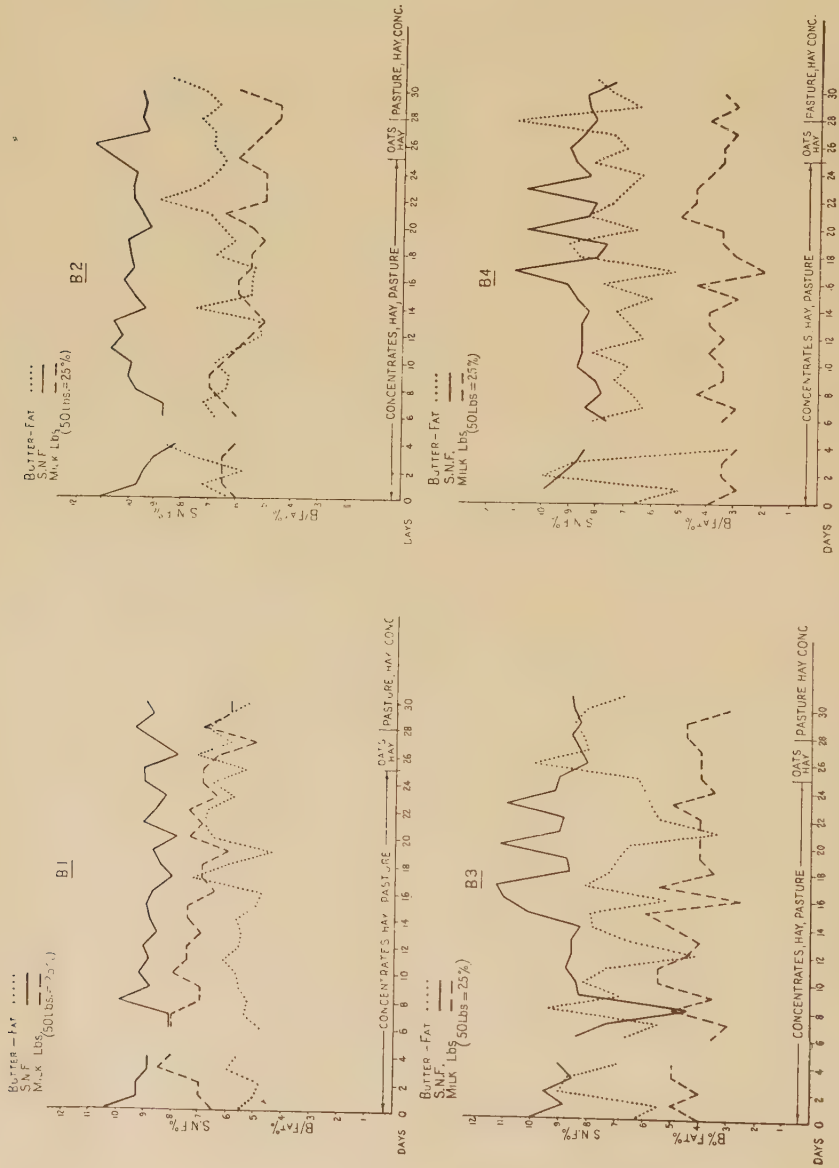
Oat Grazing Feeding Trial—Denmark, 1949.



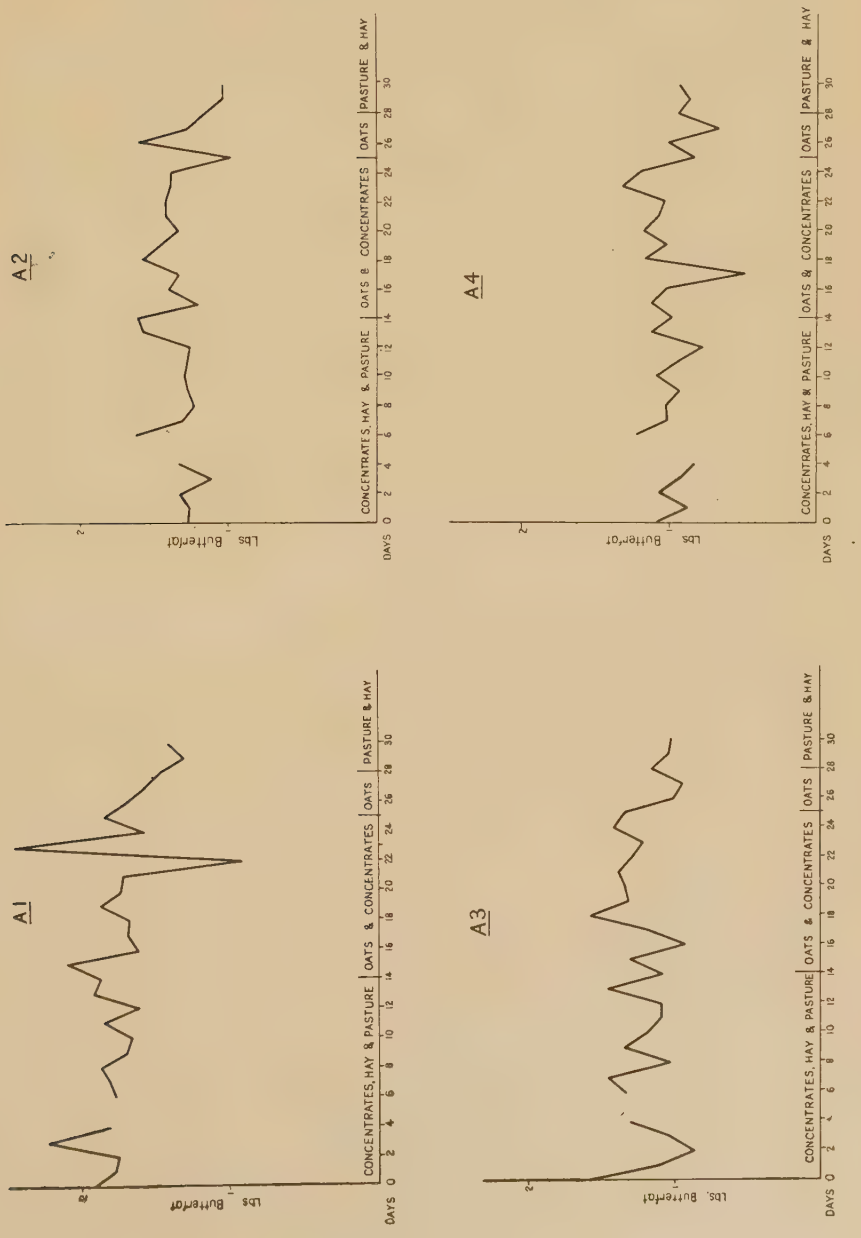
Percentage of Butterfat and Solids-not-fat—Evening Sample.



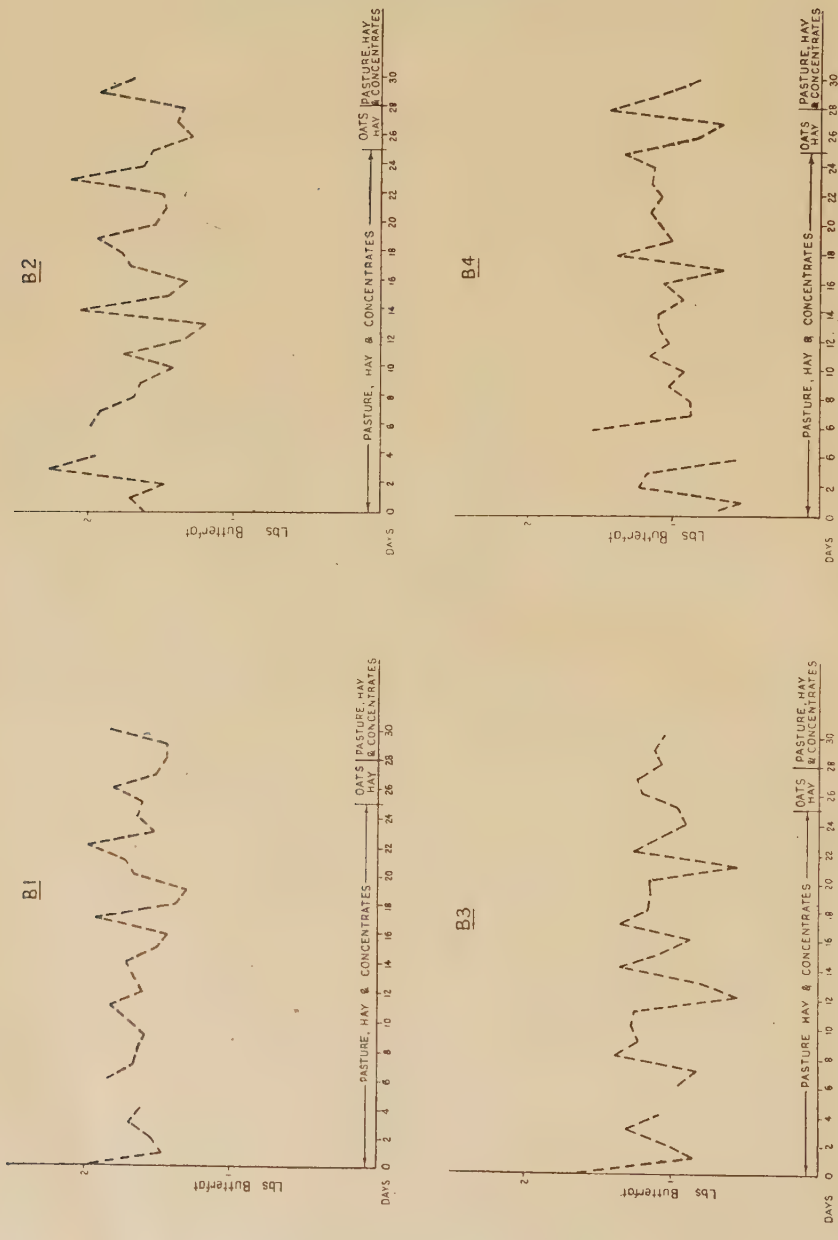
Percentage of Butterfat and Solids-not-fat—Evening Sample.



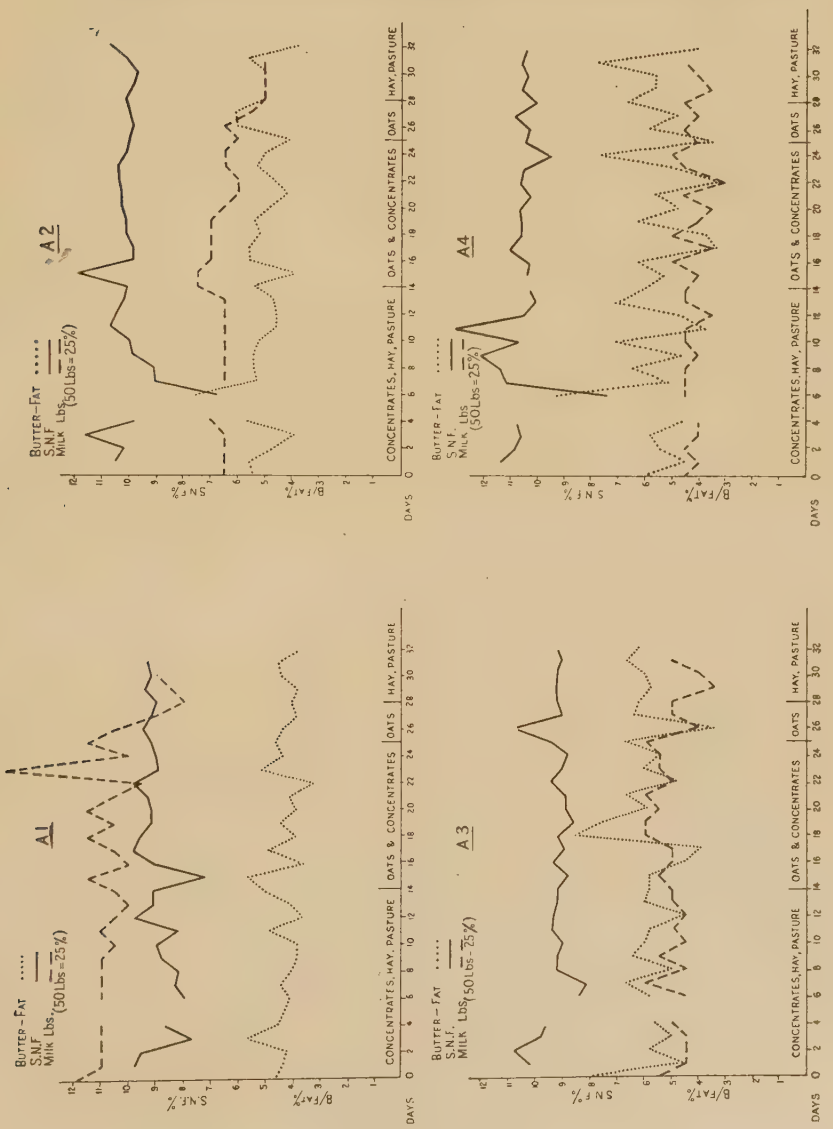
Oat Grazing Feeding Trial—Denmark, 1949.
lb. of Butterfat produced per day.



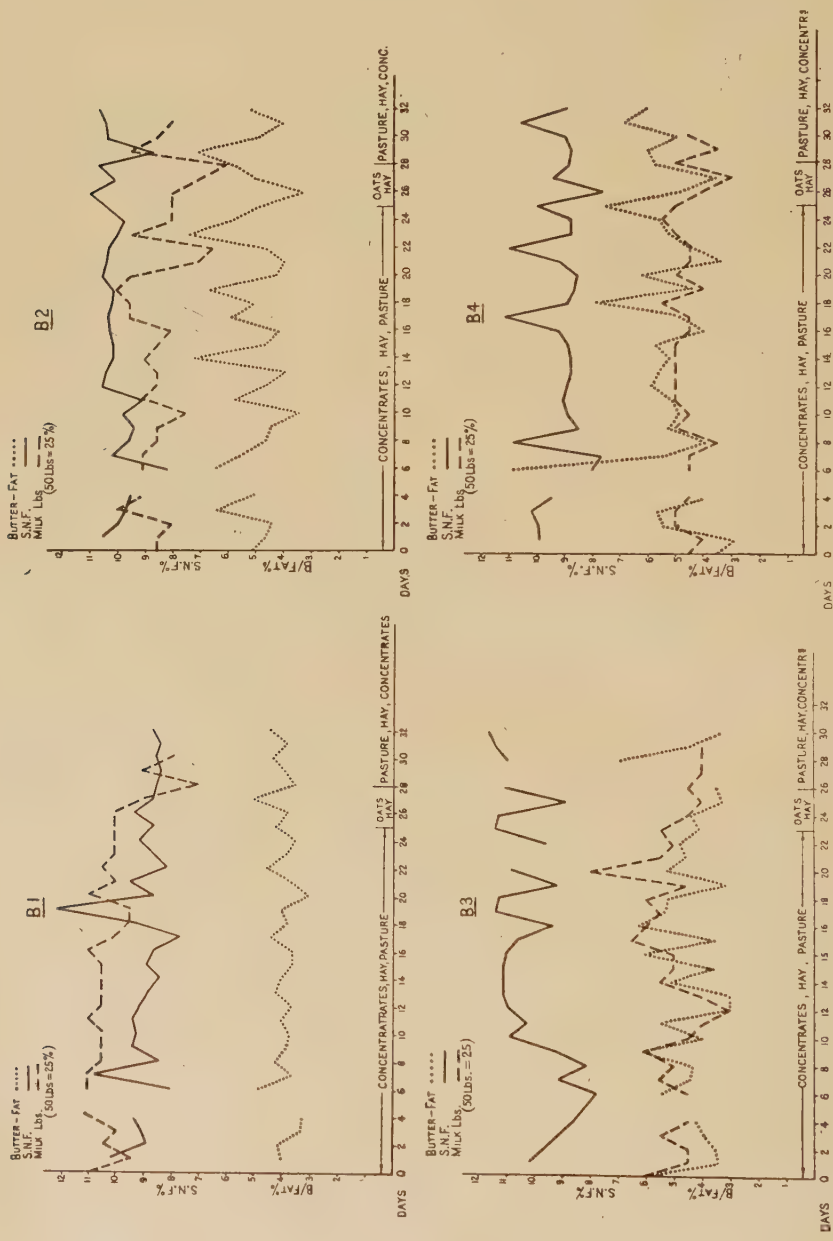
Oat Grazing Feeding Trial—Denmark, 1949.
lb. Butterfat produced per day.



Percentage of Butterfat and Solids-not-fat—Morning Sample



Percentage of Butterfat and Solids-not-fat—Morning Sample.



DISCUSSION.

The results of this trial have not supported the contention that grazing on oats without supplementary roughage will cause a dramatic fall in butterfat percentage. Reference to the report by McClyment and Paxton from New South Wales indicate a close similarity in the two experiments but a wide difference in result and conclusion. A private communication drew attention to a difference in

the fibre content of the concentrate ration as that used at Denmark contained 45 per cent of crushed oats. However, as the experimental group showed no apparent change in the composition of the milk when on green oats only it would appear that the slightly higher fibre content of the concentrate ration can not have had any influence

The cows at Denmark did not lose their appetite for concentrates while grazing oats without a supplementary hay ration. In the trial reported by McClymont the consumption of concentrates fell from 4 lb. to 1½ lb. per gallon.

When concentrates and hay were left out of the ration at Denmark there was an immediate fall in milk yield. This was attributed to an insufficient intake of nutrients from the green oats alone.

In the New South Wales trial there was no fall in milk yield while grazing green oats without supplements. There was however, a substantial fall in the total nutrients secreted.

There may be room for speculation therefore as to whether part at least of the rather startling changes in composition, paticularly in respect to fat, which have been noted in other places may not have been due to a seriously reduced intake of nutrients.

Riddet and others in New Zealand showed that sudden and distinct changes in composition followed sudden changes in the plane of feeding from an adequate to a grossly insufficient ration.

It has always been understood by experienced dairy farmers that as far as possible sudden changes of foods should be avoided, and it is suggested that some of the experiences may have been due to causes of this kind

There is therefore some doubt regarding the conclusions which should be drawn, and it is obvious that further work on this problem is necessary

It may be pointed out however that the feeding of hay, meadow or cereal during the autumn and winter when pastures are young and "sappy" and young oats are frequently grazed is a standard recommendation in this State for several reasons.

Firstly—at the break of the season there is never sufficient pasturage or green crop to adequately feed a dairy herd—therefore the supplementary use of hay with or without concentrates is needed to provide cows with sufficient nutrient for even low milk yields.

Secondly—the use of hay freely at this period allows the herd to be marshalled on to a smaller area thus allowing the pastures on the remainder to make adequate growth before the stock are allowed to graze. Therefore if farmers feed in this way the cattle will get sufficient roughage to allow the physiological processes associated with rumination to proceed, and there need be no fear of fat loss when it is necessary to graze green oats which is a crop which fits easily and successfully into the Western Australian routine to provide adequate feed in autumn and winter.

ACKNOWLEDGMENT.

Grateful acknowledgment is made to Mr. V. E. Weston, manager of Denmark Research Station, for his co-operation and that of his staff during the trial.

REFERENCES.

McClymont, Aust. Vet. Journal, May, 1950.

Riddet, Campbell, McDowell and Cox, N.Z.J. Sc. and Tech., Vol. XXIII, No. 2A. August, 1941.

OFFICIAL AUSTRALIAN PURE BREEDS HERD RECORDING SCHEME ANNUAL REPORR, 1949-50.

M. Cullity, Superintendent of Dairying.
B. H. Drakes, Assistant Dairy Records.

While strain and individuality in stock breeding are of importance, there is justification for encouraging breeders to concentrate on improving the general average quality of their herds as a whole rather than to seek for a few animals with outstanding qualities. As a means of doing this the rules have been amended to assure that every pure bred cow in a herd under test shall be tested. In the past, it has been quite obvious that cases have occurred where breeders have concentrated upon one or two animals in order to register high yields which they have then used to publicise their herd and to sell bulls which have not been of really first class quality

Rule 3 now reads as follows:—

3. All cows in the herd shall be tested annually. Such cows will be classified on the receipt of entry forms or at the commencement of the first test as follows:—

(a) "A" Class cows.

(b) "B" Class cows.

The records of yields of "B" Class cows will not be published or used in calculating averages either for the herd or for the scheme as a whole.

The following cows may, with the approval of the Superintendent of Dairying, be clasified as "B" Class:—

(i) Cows which have aborted.

(ii) Sick cows. Such cows automatically become "A" Class if they produce 150 lb. of butterfat in the first six months of their lactation period.

(iii) Strippers.

A stripper is defined:—

(a) In herds entering test for the first time, a cow which has calved more than 150 days prior to the first test.

(b) In herds continuing in test, a cow which has already completed a full lactation period in the preceding year and has not again freshened.

(iv) Nominated cows. A nominated cow is one which has calved normally but which, on entry to test is nominated for culling. If such cows are not disposed of at the time of their sixth test or six months after the date of calving, they will automatically become "A" Class.

Application for cows to be entered as "B" Class should be made on the form provided. Full particulars of cows to be given and reasons for application.

Consideration is being given to a further amendment providing for classification on the owners application, of cows as "B" where they have seriously defective udders or are very old.

Thus there is a provision for cows which are sick, that have faulty udders, that are strippers or are otherwise out of condition to be classified as "B" and for their yields to be excluded from the averages unless they produce 150 lb. of butterfat in the first six months of lactation.

For these animals also, no fees are charged. It should be unnecessary to explain that in terming "A" Class those cows whose averages will be published and for which fees will be charged, and "B" those that are sick or otherwise are not in condition to give of their best, there is no suggestion of grading the animals according to their breed quality or their productive capacity. It is purely a device to ensure that every available cow in the herd is tested. With these amendments representatives of each of the pure breed societies have expressed their agreement. As a result of the change in rule the number of cows under test during the past year has increased considerably. The total number completing test for the year was 805 from 42 herds. This is an increase of 133 cows compared to the number tested during 1948-49.

Owing to sickness, deaths, etc., 88 cows completed test before they had been recorded for 150 days and therefore their performances have not been included in the averages. The remaining 717 cows averaged 6,120 lb. of milk, 4.52 per cent. of butterfat and 276.8 lb. of butterfat. This is a decrease of 12.1 lb. of butterfat on the average of the previous year.

This reduced production is not unexpected owing to the fact that a number of cows have been brought into testing which, under the old procedure, would not have been submitted because the owners would not have considered them suitable for testing either on the grounds of their obvious incapacity, their calving at an unsuitable period of the year, or for some other reason. The average production of cows completing test for the past several years is shown in Table 1.

TABLE 1.

AVERAGE PRODUCTION—PURE BRED HERDS.

Year.	No. of Cows Completing Test.	Average Butterfat per Cow.
		lb.
1934–35	305	320.26
1938–39	375	292.40
1940–41	372	298.38
1942–43	294	321.27
1944–45	344	289.42
1947–48	607	297.24
1948–49	598	288.98
1949–50	717	276.84

It will be seen that there has been a gradual decline in production since 1942 when the average was 321 lb. of butterfat for 294 cows. It should be noted that the number of cows tested last year is two and a half times this figure. The performance therefore, while disappointing inasmuch as it has shown a decline, may be considered satisfactory because of the inclusion in test for the first time of a large number of cows which normally would not have been considered suitable for testing.

The percentage of cows passing standard for seven selected years since 1940 is shown in Table 2.

Table 2.
PERCENTAGE OF COWS PASSING STANDARD.

Year.	Australian Illawarra Shorthorn.	Guernsey	Jersey.	Total.
	%	%	%	%
1937–38	59.1	68.7	35.6	53.1
1939–40	48.0	77.5	64.2	59.2
1944–45	52.5	43.4	72.2	57.3
1945–46	43.1	33.3	52.9	43.8
1947–48	44.4	54.4	63.2	54.0
1948–49	35.7	52.1	57.4	48.5
1949–50	25.5	55.7	44.2	37.5

This table reveals that the percentage of cows passing standard during the year is the lowest on record. This again, may be considered to be the result of the insistence upon the testing of all pure bred cows in recording herds and therefore is not unexpected. It is disappointing however, as it is from the pure bred herds generally that the dairy farmer purchases his herd sire, and he is entitled to expect that the stud breeders, deriving a portion of their livelihood from the sale of commercial herd sires, should maintain their herds at a productive level which would give confidence that young bulls would transmit high capacity for yields.

The Guernsey breed was the only one during the past year to show an increase in the percentage of cows passing standard. The number of Jerseys passing standard was 13.2 per cent. lower and 10 per cent. fewer Shorthorn cows reached the standard production.

It is rather disappointing that of the 337 A.I.S. cows which completed test, only 86 or 25.5 per cent. passed standard.

Table 3 gives the number of cows passing standard for each age group. The proportion in each age group is also shown. A study of this table will indicate that in the age groups, mature and senior four year old, only 24.2 per cent. passed standard. In the remaining age groups 45.4 per cent. passed, while the best performance was that of the two year old, where 49.1 per cent. passed standard.

Table 3.
COWS PASSING STANDARD.

Age Class.	A.I.S.		Guernsey.		Jersey.		All Breeds.	
	No. of Cows tested.	No. passing standard.	No of Cows tested.	No. passing standard.	No. of Cows tested.	No. passing standard.	No. of Cows tested.	No. passing standard.
Mature	98	13	51	23	64	17	213	53
Senior 4 years	32	2	9	5	14	5	55	12
Junior 4 years	23	6	8	6	23	10	54	22
Senior 3 years	35	11	7	3	19	12	61	26
Junior 3 years	36	6	21	15	31	14	88	35
Senior 2 years	26	10	16	8	23	13	65	31
Junior 2 years	87	38	19	13	75	39	181	90
Total	337	86	131	73	249	110	717	269
Percentages		25.5		55.7		44.2		37.5

TABLE 4.

AVERAGE PRODUCTION IN EACH AGE CLASS 1949–50.

Age Class.	Butter-fat Stand-ard required.	A.I.S.				GUERNSEY.				JERSEY.				ALL BREEDS.			
		No. of Cows.	Average Milk.	Per cent. Test.	Average Butter-fat.	No. of Cows.	Average Milk.	Per cent. Test.	Average Butter-fat.	No. of Cows.	Average Milk.	Per cent. Test.	Average Butter-fat.	No. of Cows.	Average Milk.	Per cent. Test.	Average Butter-fat.
			lb.		lb.		lb.		lb.		lb.		lb.		lb.		lb.
Mature	350	98	7,800	3·67	286·77	51	6,341	5·03	319·07	64	6,180	5·22	323·07	213	6,964	4·38	305·41
Senior 4 years	330	32	6,772	3·67	248·95	9	6,701	5·03	337·63	14	6,412	5·28	339·09	55	6,669	4·29	286·41
Junior 4 years	310	23	7,186	3·87	278·79	8	6,953	5·18	360·80	23	5,844	5·56	325·33	54	6,579	4·72	310·76
Senior 3 years	290	35	6,730	3·76	253·31	7	5,538	5·60	310·47	19	5,616	5·63	316·52	61	6,246	4·47	279·56
Junior 3 years	270	36	5,770	3·87	223·63	21	6,184	5·29	327·18	31	5,394	5·26	283·74	88	5,736	4·69	269·43
Senior 2 years	250	26	5,873	4·03	236·85	16	5,031	5·02	252·66	23	4,695	5·46	256·40	65	5,249	4·71	247·66
Junior 2 years	230	87	5,691	3·97	226·44	19	5,767	5·28	304·93	75	4,675	5·28	247·26	181	5,278	4·61	243·31
Total	....	337	6,639	3·81	252·99	131	6,092	5·14	313·57	249	5,431	5·33	289·79	717	6,120	4·52	276·84

It is believed from observation and discussion with breeders that this is partly due to the slightly better attention given to the younger animals, whilst it has also been suggested that the standard for the junior two is slightly easier to achieve than the standard for older cows. Whether this is so or not, the standard is as determined for the whole of Australia and cannot be altered without agreement with the other States.

The average production of milk and butterfat in each age group of each breed is shown in Table 4. It will be seen that, for all breeds, the only age groups to reach standard production were the junior 4 and the junior 2 year old classes. In the A.I.S. breed all age groups were again below standard. This is extremely disappointing and it is suggested to the Shorthorn breeders that they take special pains to show that their breed is capable of higher things.

In the Guernsey and Jersey breeds, all age groups except mature exceeded standard. In the Guernsey junior two year old class, 19 cows averaged 304.9 lb. of butterfat. The average milk per cow for all breeds was 98 lb. more than last year.

A comparison between the production of cows under test 150 days and over with those which completed a full 273 days period, is shown in Table 5 segregated according to breed and age class. This table demonstrates that in the 273 day average for all breeds, the only age groups which failed to reach standard were the mature and senior four year olds.

An examination of the various sections of the table will show the value of a full lactation in achieving higher yields. Far too many cows in Australia have a short lactation. Better feeding conditions and possibly the will to achieve good yields on the part of the farmer would contribute to higher production.

The net result of the comparison is in the figures for all cows, showing 717 cows in milk 150 days and over, and including those completing 273 days averaging 276.8 lb. butterfat, while the 488 cows which did have a full 273 days period gave a yield of 306.2 lb.

A comparison of the breeds is as follows:—

	150 days and over.		273 days.		273 days.
	Cows.	lb. fat.	Cows.	lb. fat.	Percentage.
A.I.S.	337	252.9	239	269.5	70
Guernsey	131	313.6	96	354.6	73
Jersey	249	289.8	153	333.3	61
Total	717	276.8	488	306.2	68

The reason for a smaller number of the Jersey cows having a full lactation is not obvious.

TABLE 5.

COMPARATIVE TABLE SHOWING AVERAGE PRODUCTION IN EACH AGE CLASS OF COWS UNDER TEST 150 DAYS OR OVER AND COWS COMPLETING 273 DAYS.

Age Class.	Standard required.	A.I.S.				Guernseys.				Jersey.				All Breeds.			
		No. of Cows Tested 150 days or over.	Average Butter-fat.	No. of Cows Completing 273 days.	Average Butter-fat.	No. of Cows Tested 150 days or over.	Average Butter-fat.	No. of Cows Completing 273 days.	Average Butter-fat.	No. of Cows Tested 150 days or over.	Average Butter-fat.	No. of Cows completing 273 days.	Average Butter-fat.	No. of Cows Tested 150 days or over.	Average Butter-fat.	No. of Cows completing 273 days.	Average Butter-fat.
			lb.		lb.		lb.		lb.		lb.		lb.		lb.		lb.
Mature	350	98	286·77	69	294·05	51	319·07	37	356·33	64	323·07	39	372·93	213	305·41	145	331·16
Senior 4 years	330	32	248·95	22	264·99	9	337·63	5	438·57	14	339·09	11	369·01	55	286·41	38	317·94
Junior 4 years	310	23	278·79	19	295·94	8	360·80	7	384·10	23	325·33	11	402·77	54	310·76	37	344·38
Senior 3 years	290	35	253·31	26	259·66	7	310·47	4	419·74	19	316·52	12	334·78	61	279·56	42	296·37
Junior 3 years	270	36	223·63	24	241·92	21	327·18	18	350·06	31	283·74	15	350·98	88	269·43	57	304·77
Senior 2 years	250	26	236·85	15	286·13	16	252·66	11	286·68	23	256·40	13	311·58	65	247·66	39	294·77
Junior 2 years	230	87	226·44	64	247·27	19	304·93	14	345·62	75	247·26	52	281·42	181	241·31	130	271·52
Averages	....	337	252·99	239	269·52	131	313·57	96	354·56	249	289·79	153	333·33	717	276·84	488	306·26

The leading sire for the year was again the Jersey bull Mornmoot Northwood Beau, owned by R. H. Rose and Son. His nine daughters averaged 522.6 lb. butterfat. He was followed by Koojan Ace's Warspite, whose 16 daughters under test for the year averaged 421.5 lb. Koojan Ace's Warspite's daughters were tested at the Muresk Agricultural College. Koojan Ideal's Dictator was third, and his seven daughters averaged 366.4 lb. for the year.

Table 6.

LEADING THREE SIRES 1949–50.

Name of Bull.	Owner.	Sire.	Dam.	Number of Daughters Tested	Average Production (without Allowances) Butterfat.
					lb.
Mornmoot Northwood Beau (17,789) (Jersey).	R. H. Rose & Son	Glen Iris Golden Beau (14,629)	Mornmoot Northwood Madeira 7th (63,202).	9	522·51
Koojan Ace's Warspite (5,943) (Guernsey)	Muresk Agricultural College.	Homestead Ace (Imp. U.S.A.) (1,631)	Koojan Ideal's Jewel (7,257)	16	421·47
Koojan Ideal's Dictator (4,167) (Guernsey)	Muresk Agricultural College.	Glenburnie Ideal (2,548) (Imp. U.S.A.).	Koojan Golden Butterfly (4,339)	7	366·39

The production of the three leading cows in each age group are shown in Table 7. One cow gave over 700 lb. of butterfat, four over 600 lb., five over 500 lb. and 11 over 400 lb.

Of the 21 cows shown in this table, 12 are Jerseys, eight Guernseys and one Australian Illawarra Shorthorn.

Table 7.

THREE LEADING COWS IN EACH AGE CLASS.

Name of Cow.	Breed.	Weight of Milk for Period.	Average Test. %	Weight of Butterfat for Period.	Sire.
		Mature.			
Grass Vale Silvermine 2nd	Jersey	13,131	5·59	734·23	R. H. Rose & Son.
Mokine Beauty	Jersey	11,790	5·89	694·74	T. H. Wilding.
Grass Vale Golden Cream 26th	Jersey	9,691	6·27	607·49	R. H. Rose & Son.
		Senior 4 Years Old.			
Grass Vale Buttercup 17th	Jersey	11,136	5·86	652·79	R. H. Rose & Son.
Muresk Dora	Guernsey	11,664	4·79	559·81	Muresk Agricultural College.
Denmark Ace's Dawn 3rd	Guernsey	9,024	5·46	492·44	Denmark Research Station.

TABLE 7—*continued.*

THREE LEADING COWS IN EACH AGE CLASS—*continued.*

Junior 4 Years Old.					
Montaro Princess	A.I.S.	12,465	4·09	510·24	M. H. Montgomery.
Muresk Helianthus	Guernsey	9,111	5·41	493·16	Muresk Agricultural College.
Travalgan Lady Eion	Jersey	7,614	6·41	487·98	W. H. & T. F. Robinson.
Senior 3 Years Old.					
Denmark Golden Veronica	Guernsey	9,306	6·16	573·37	Denmark Research Station.
Trelawney Lighty	Jersey	9,045	6·07	548·93	J. C. Bushell.
Muresk Marielena	Guernsey	8,043	5·77	464·12	Muresk Agricultural College.
Junior 3 Years Old.					
Kapara Sweet Briar 2nd	Jersey	10,260	5·87	602·81	D. Bradford.
Denmark Reflections' Marion	Guernsey	8,181	6·06	495·71	Denmark Research Station.
Kapara Happy Days' 4th	Jersey	8,364	5·69	475·87	D. Bradford.
Senior 2 Years Old.					
Trelawney Gingerbread	Jersey	7,365	5·95	438·41	J. C. Bushell.
Grass Vale Golden Cream 30th	Jersey	8,089	5·17	418·38	R. H. Rose & Son.
Muresk Delicia 2nd	Guernsey	7,610	5·44	413·74	Muresk Agricultural College.
Junior 2 Years Old.					
Muresk Air Hostess	Guernsey	9,927	5·09	505·48	Muresk Agricultural College.
Grass Vale Lady Fowler 53rd	Jersey	9,608	5·11	490·67	R. H. Rose & Son.
Kapara Rose Marie 2nd	Jersey	7,461	6·48	483·34	D. Bradford.

The production of all cows which completed test during the year are given in Table 8. This year a change has been made in the method of presentation. Instead of grouping all cows according to age class and in order of merit irrespective of the owner, in this report, the performances of the cows are grouped according to the herd in which they were tested. In this way, farmers can examine the performances from all their cows in comparison with those of other breeders.

Commercial dairy farmers anxious to purchase herd sires or maybe procure a few pure bred heifers with a view to commencing a stud, can also examine the figures with a view to determining the most productive consistent lines of producers in the various herds.

At the bottom of the various herd tables are shown the total number of cows included, and the average performance of all the cows in that particular herd for the year. It is hoped that this innovation will be of value to all farmers, and comments from those interested would be appreciated.

PURE BRED HERD TESTING.

COWS WHICH COMPLETED TEST DURING THE TWELVE MONTHS ENDED 30TH JUNE, 1950.

GUERNSEYS.

Name of Cow.	Age Class	Date of Entry to Test.	No. of Days in Test.	Weight of Milk on Last Day of Test. lb.	Weight of Milk for Period. lb.	Average Test. %	Weight of Butterfat for Period. lb.	Sire.
J. R. GILES.								
Lansdowne Bonnie Elizabeth	Mature	13-6-49	273	31·5	10,819	5·25	567·60	Koojan Beau Ideal (4965).
Lansdowne Ideal's Pride	Mature	5-7-49	273	20	7,905	5·51	435·29	Koojan Beau Ideal (4965).
Drakesbrook Queen Ann	Junior 4 years	24-9-49	273	13·5	8,425	5·37	452·39	Koojan Ace's Aviator (5930).
Muresk June	Junior 4 years	7-9-49	273	10	7,035	4·81	339·01	Koojan Ideal's Dictator (4167).
Korilya Andromeda	Senior 4 years	6-6-49	273	25	8,025	5·52	442·59	Koojan Beau Ideal (4965 A.R.).
Whitmore Girlie 2nd	Junior 3 years	31-7-49	273	12	6,966	5·27	367·07	Lansdowne Dymphna's Climax (5963).
Muresk June	Junior 3 years	26-10-48	273	14	6,342	5·26	333·59	Koojan Ideal's Dictator (4167).
Number of Cows in Average, 7.	Average Milk, 7,931 lb.	Average Test, 5·29 per cent.	Average Butterfat, 419·65 lb.					
MURESK AGRICULTURAL COLLEGE.								
Muresk Daltana	Mature	30-9-49	273	28	9,714	4·81	467·10	Denmark Damon (2519).
Muresk Delicia's Pride	Mature	22-8-49	273	17	9.171	4·68	429·85	Koojan Ace's Warspite (5943).
Muresk Veronica	Mature	18-9-49	273	26	8,088	5·10	412·23	Koojan Ideal's Dictator (4167).
Muresk Diadem	Mature	25-5-49	273	21	7,503	5·46	408·98	Koojan Ace's Warspite (5943).
Muresk Anna	Mature	23-2-49	273	29	8,847	4·54	402·32	Koojan Ideal's Dictator (4167).
Muresk Awas	Mature	20-8-49	30	37	1,110	4·11	45·66	Koojan Ideal's Dictator (4167).
Muresk Dora	Senior 4 years	23-5-49	273	38	11,664	4·79	559·81	Koojan Ace's Warspite (5943).
Muresk Adeline	Senior 4 years	30-3-49	273	25	9,285	4·29	398·23	Koojan Ace's Warspite (5943).
Muresk Lady Ideal	Senior 4 years	19-8-49	273	22	7,536	5·02	378·33	Koojan Ideal's Dictator (4167).
Muresk Jessica	Senior 4 years	21-2-49	273	15	7,215	5·04	364·03	Koojan Ideal's Dictator (4167).
Muresk Helianthus	Junior 4 years	23-3-49	273	27	9,111	5·41	493·16	Koojan Ace's Warspite (5943).
Muresk Dignity	Junior 4 years	13-2-49	273	15	7,215	4·83	348·46	Koojan Ideal's Dictator (4167).
Muresk Marielena	Senior 3 years	22-9-49	273	21	8,043	5·77	464·12	Koojan Ace's Warspite (5943).
Muresk Morning Glory 2nd	Junior 3 years	1-6-49	273	27	8,751	5·36	469·12	Koojan Ace's Warspite (5943).
Muresk Minnie	Junior 3 years	22-9-49	273	26	8,223	5·35	440·37	Koojan Ace's Warspite (5943).
Muresk Diana 2nd	Junior 3 years	29-7-49	273	22	7,866	4·49	353·06	Koojan Ideal's Dictator (4167).
Muresk Delicia 2nd	Senior 2 years	15-2-49	273	30	7,610	5·44	413·74	Koojan Ace's Warspite (5943).
Muresk Prudence	Senior 2 years	14-6-49	273	21	6,933	4·74	328·72	Koojan Ace's Warspite (5943).
Muresk Air Hostess	Junior 2 years	9-4-49	273	29	9,927	5·09	505·48	Koojan Ace's Warspite (5943).
Muresk Jewel 2nd	Junior 2 years	22-2-49	273	22	7,296	5·06	379·78	Koojan Ace's Warspite (5943).

Muresk Jennie 2nd	Junior 2 years	4-4-49	273	17	6,081	5·58	339·57	Koojan Ace's Warspite (5943).
Muresk Rita	Junior 2 years	6-4-49	273	25	7,935	4·25	337·53	Koojan Ace's Warspite (5943).
Muresk Audrey	Junior 2 years	30-3-49	273	24	7,662	4·27	327·00	Koojan Ace's Warspite (5943).
Muresk Winnie	Junior 2 years	19-9-49	273	20	6,270	5·03	315·20	Koojan Ace's Adjutant (7431).
Muresk Dignity's Ruth	Junior 2 years	2-10-49	273	16	5,268	5·38	283·71	Koojan Ace's Adjutant (7431).

Number of Cows in average, 24. Average milk, 8,050 lb. Average Test, 4·97 per cent. Average Butterfat, 400·83 lb.

A. W. PADBURY.

Koojan Noblemark's Bo-Peep	Mature	17-12-48	273	14	8,807	5·43	478·91	Koojan Ideal's Noblemark (5949)
Denmark Ace's Dame	Mature	12-11-48	273	23	7,899	5·68	448·58	Homestead Ace (Imp.) (1631)
Denmark Ace's Dawn 2nd	Mature	10-10-48	273	10	6,330	6·07	384·23	Homestead Ace (Imp.) (1631)
Koojan Ace's Julie	Mature	25-12-48	273	14	5,622	5·19	292·13	Homestead Ace (Imp.) (1631)
Koojan Ace's Julie	Mature	26-11-49	120	16	3,960	4·70	186·17	Homestead Ace (Imp.) (1631)
Koojan Ace's Jennie	Junior 4 years	21-12-48	273	23	8,064	5·57	449·91	Homestead Ace (Imp.) (1631)
Koojan Ace's Bramble	Junior 4 years	27-11-49	90	20·5	2,955	4·69	138·78	Homestead Ace (Imp.) (U.S.A.) (1631)
Koojan Ace's Bramble	Junior 3 years	21-12-48	273	16	7,159	5·75	412·08	Homestead Ace (Imp.) (1631)
Koojan Whirlwind's Trixie	Junior 3 years	24-11-48	273	17	6,816	4·98	339·98	Koojan Ace's Whirlwind (7447)
Koojan Benoit's Muriel	Junior 2 years	12-11-48	273	14	5,172	5·86	303·16	Roads End Benoit (5211)

No. of cows in average, 8. Average Milk, 6,983 lb. Average Test, 5·56 per cent. Average Butterfat, 388·62 lb.

DENMARK RESEARCH STATION.

Denmark Ace's Rose	Mature	24-5-49	273	18	8,739	4·93	431·23	Homestead Ace (Imp.) (1631)
Denmark Dame 2nd	Mature	1-6-49	273	17	8,191	5·01	410·26	Denmark Lady's Goldseeker (4799)
Denmark Lady Diana 2nd	Mature	7-8-49	273	8	6,384	6·20	396·06	Denmark Dawn's Apollo (4785)
Denmark Bonnie Princess	Mature	26-9-49	273	16	7,668	5·11	391·93	Koojan Ideal's Reflection (4974)
Denmark Golden Valencia 2nd	Mature	19-7-49	273	10	7,215	5·36	386·36	Koojan Ace's Goldseeker (3431)
Denmark Bonnie Marie	Mature	22-7-49	273	5	6,975	5·02	350·08	Denmark Marie's Ruler (5756)
Coogely Jonquil	Mature	29-4-49	60	....	2,250	5·08	114·24	Coogely Judy's Goldmine (2621)
Denmark Ace's Dawn 3rd	Senior 4 years	3-7-49	273	8	9,024	5·46	492·44	Denmark Ace (5738)
Denmark Aristocrat's Valencia	Junior 4 years	17-8-49	273	5	6,540	4·87	318·48	Denmark Ace's Aristocrat (5740)
Denmark Valencia's Image	Junior 4 years	6-4-49	273	8	4,989	5·75	287·29	Koojan Ideal's Reflection (4974)
Denmark Golden Veronica	Senior 3 years	8-7-49	273	22	9,306	6·16	573·37	Denmark Ace (5738)
Denmark Reflection's Marion	Junior 3 years	7-7-49	273	17	8,181	6·06	495·71	Koojan Ideal's Reflection (4974)
Denmark Reflection's Ripple	Junior 3 years	10-10-49	273	10	6,990	6·02	420·68	Koojan Ideal's Reflection (4974)
Denmark Ace's Valencia	Junior 3 years	6-8-49	273	6	5,888	5·12	301·60	Denmark Ace (5738)
Denmark Aristocrat's Reflectionette	Junior 3 years	27-7-49	273	4	5,052	5·89	297·69	Denmark Ace's Aristocrat (5740)
Denmark Reflection's Velvet	Junior 3 years	29-4-49	273	7	4,596	5·52	253·84	Koojan Ideal's Reflection (4974)
Denmark Ace's Countess	Senior 2 years	23-1-49	273	22	6,321	5·58	352·89	Denmark Ace (5738)
Denmark Warspite's Jean	Junior 2 years	23-7-49	273	16	8,343	5·37	448·06	Koojan Ace's Warspite (5943)
Denmark Reflection's Angel	Junior 2 years	29-4-49	273	16	7,008	6·05	423·95	Koojan Ideal's Reflection (4974)
Denmark Ace's Light	Junior 2 years	31-1-49	273	17	5,091	7·12	362·49	Denmark Ace (5738)
Denmark Reflectionette 2nd	Junior 2 years	22-12-48	273	20	5,595	6·25	350·03	Denmark Ace (5738)
Denmark Aristocrat's Diane	Junior 2 years	17-1-49	273	14	4,977	5·74	285·56	Denmark Ace's Aristocrat (5740)

No. of Cows in Average, 21. Average Milk, 6,813 lb. Average Test, 5·61 per cent. Average Butterfat, 382·38 lb.

PURE BRED HERD TESTING—continued.

COWS WHICH COMPLETED TEST DURING THE TWELVE MONTHS ENDED 30TH JUNE, 1950—*continued.*

GUERNSEYS.

Name of Cow.	Age Class.	Date of Entry to Test.	No. of Days in Test.	Weight of Milk on Last Day of Test. lb.	Weight of Milk for Period. lb.	Average Test %	Weight of Butterfat for Period. lb.	Sire.
W. J. SMITH.								
Marrivale Anne	Mature	1–5–49	273	22	8,106	5·87	475·85	Denmark Ace's Image (5741)
Marrivale Sylph	Mature	30–3–49	273	19	6,687	5·73	383·02	Koojan Golden Prosper (2283)
Marrivale Serene	Mature	14–5–49	273	8	6,009	5·49	329·89	Marrivale Buccaneer (5041)
Marrivale Sublime	Mature	22–3–49	273	17	6,111	4·79	292·82	Moongi Golden Dream (1493)
Marrivale Vera	Junior 3 years	3–4–49	273	17	5,976	6·42	383·94	Denmark Ace's Image (5741)
Marrivale Placid	Senior 2 years	3–7–49	273	8	5,439	5·37	292·18	Denmark Ace's Image (5741)
Marrivale Annette	Senior 2 years	4–4–49	273	11	4,278	6·31	269·90	Denmark Ace's Image (5741)
Number of Cows in Average, 7.	Average Milk, 6,086 lb		Average Test, 5·69 per cent.				Average Butterfat, 346·80 lb.	
W. D. PATMORE.								
Denmark Dulceena	Mature	25–3–49	273	18	7,149	5·23	373·90	Koojan Ideals Reflection (4974)
Denmark Reflection's Dawn	Mature	30–8–49	210	8	5,550	5·11	283·44	Koojan Ideals Reflection (4974)
Brookfield's Blanche	Mature	25–10–49	120	3	2,220	3·86	85·62	Yarraview Julian (4634)
Chelsea Anna 2nd	Senior 4 years	27–7–49	240	2	3,930	5·07	199·16	Denmark Briar's Reflection (5745)
Chelsea Jessica	Senior 4 years	13–10–49	150	4	2,700	4·89	132·12	Denmark Briar's Reflection (5743)
Chelsea Beauty	Junior 3 years	25–10–48	273	29·5	8,578	5·12	439·52	Denmark Briar's Reflection (5745)
Chelsea Blonde	Junior 3 years	24–8–49	120	17	3,060	5·06	155·01	Denmark Briar's Reflection (5745)
Chelsea Velvet	Senior 2 years	25–4–49	273	5	7,725	4·24	327·39	Denmark Briar's Reflection (5745)
Chelsea Julie	Junior 2 years	3–5–49	240	8	4,185	4·89	204·98	Denmark Briar's Reflection (5745)
Chelsea Pearl	Junior 2 years	23–7–49	180	3	3,030	5·56	168·39	Chelsea Mahomed (6970)
Number of Cows in average, 8.	Average Milk, 5,356 lb.		Average Test, 4·96 per cent.				Average Butterfat, 266·11 lb.	
G. BRENTON.								
Rutherwood Daisy 2nd	Junior 3 years	15–4–49	273	15	5,595	5·52	308·72	Koojan Ace's Sunshade (5942)
Rutherwood Rosebud 2nd	Junior 3 years	8–6–49	273	8	6,339	4·39	278·47	Koojan Ace's Sunshade (5942)
Rutherwood Golden Dawn 2nd	Junior 3 years	2–8–49	180	17	4,545	4·61	209·58	Koojan Ace's Sunshade (5942)
Rutherwood Golden Butterfly 2nd	Junior 3 years	9–8–49	180	12	3,660	5·16	189·03	Koojan Ace's Sunshade (5942)
Rutherwood Dinah 2nd	Junior 3 years	8–8–49	180	13	3,930	4·35	171·00	Koojan Ace's Sunshade (5942)
Rutherwood Maid Marion 2nd	Senior 2 years	17–5–49	273	9	6,597	4·46	294·54	Koojan Ace's Sunshade (5942)
Number of Cows i Average, 6.	Average Milk, 5,111 lb.		Average Test, 4·73 per cent.				Average Butterfat, 241·89 lb.	

MISSES E. and I. RUTHERFORD.

Rutherwood Golden Beauty	Mature	17-5-49	273	16·5	6,324	6·11	386·24	Denmark Golden Rippler (5751)
Rutherwood Golden Dawn	Mature	4-10-49	273	16	7,173	4·98	357·30	Denmark Golden Rippler (5751)
Rutherwood Dinah	Mature	9-10-49	273	15·5	6,091	4·70	286·18	Denmark Robin Hood (3322)
Rutherwood Daffodil	Mature	3-11-48	273	18·5	5,455	5·16	281·51	Rutherwood Robin Adair (5238)
Rutherwood Maid Marion	Mature	8-5-49	273	13	6,144	4·49	275·81	Denmark Robin Hood (3322)
Rutherwood Golden Twilight	Mature	19-6-49	273	14	6,247	3·95	246·55	Denmark Golden Rippler (5751)
Rutherwood Robin's Rosa	Mature	31-8-49	273	13	5,394	4·39	236·84	Denmark Robin Hood (3322)
Rutherwood Fairy	Mature	11-10-49	273	10	5,520	4·05	223·86	Rutherwood Sailor (5240)
Rutherwood Pixie	Mature	5-10-49	180	17	4,530	4·89	221·64	Rutherwood Rose Chief (4454)
Rutherwood Daffodil	Mature	13-12-49	210	15	3,750	4·98	186·78	Rutherwood Robin Adair (5328)
Rutherwood Golden Twinkle	Mature	26-6-49	273	2·5	3,969	4·02	159·57	Denmark Golden Rippler (5751)
Rutherwood Rosebud	Mature	19-1-5[illegible]	150	16·5	3,060	4·75	145·53	Denmark Robin Hood (3322)
Rutherwood Annette	Senior 4 years	18-11-[illegible]	210	13	3,420	6·21	212·58	Koojan Ace's Sunshade (5942)
Rutherwood Jonquil 2nd	Senior 4 years	5-[illegible]-50	60	11	750	5·18	38·85	Koojan Ace's Sunshade (5942)
Rutherwood Golden Flirt 2nd	Junior 4 years	17-[illegible]-49	210	10	4,245	4·65	197·73	Rutherwood Golden Ideal (7971)
Rutherwood Jonquil 2nd	Senior 3 years	13-11-48	273	14	3,762	5·29	198·90	Koojan Ace's Sunshade (5942)
Rutherwood Fairy 2nd	Senior 3 years	10-11-49	240	9	3,990	4·68	186·96	Koojan Ace's Sunshade (5942)
Rutherwood Jonquil 3rd	Senior 3 years	25-12-49	120	7·5	1,305	5·28	68·93	Koojan Ace's Sunshade (5942)
Rutherwood Golden Flirt 2nd	Junior 3 years	31-10-49	273	12·5	4,552	5·31	241·57	Rutherwood Golden Ideal (7971)
Rutherwood Golden Bird	Senior 2 years	19-6-49	273	12	4,536	5·21	236·36	Koojan Ace's Sunshade (5942)
Rutherwood Jonquil 3rd	Senior 2 years	27-10-48	273	9	3,177	5·44	173·08	Koojan Ace's Sunshade (5942)
Rutherwood Golden Flirt 3rd	Senior 2 years	7-1-50	60	17	1,020	4·81	49·98	Koojan Ace's Sunshade (5942)

No. of Cows in Average, 19. Average Milk, 4,807 lb. Average Test, 4·87 per cent. Average Butterfat, 234·46 lb.

J. CABASSI.

Clovelly Lily	Mature	24-5-49	273	11	6,858	4·93	338·33	Lansdowne Polydymite (4995)
Clovelly Cherry	Mature	26-6-49	240	10	5,730	4·66	266·95	Koojan Monogram (4174)
Clovelly Crystal	Mature	8-5-49	240	5·5	5,475	5·67	250·66	Koojan Monogram (4174)
Clovelly Dainty	Mature	16-8-49	210	7	4,905	4·98	244·62	Koojan Monogram (4174)
Clovelly Golden Pearl	Mature	31-8-49	240	4	5,370	4·52	242·61	Lansdowne Polydymite (4995)
Clovelly Melba	Mature	13-7-49	273	10	5,655	4·27	241·27	Lansdowne Polydymite (4995)
Clovelly Lola	Mature	20-5-49	273	9	4,947	4·74	234·48	Lansdowne Polydymite (4995)
Clovelly Golden Flirt	Mature	21-5-49	240	10·5	4,740	4·81	227·94	Koojan Monogram (4174)
Clovelly Golden Pride	Mature	31-5-49	240	8	4,410	4·94	217·95	Drakesbrook Golden Gift (2651)
Clovelly Hazel	Mature	8-5-49	273	9·5	4,603	4·56	209·90	Lansdowne Polydymite (4995)
Clovelly Diana	Mature	29-9-49	210	3	4,005	4·24	169·83	Lansdowne Polydymite (4995)
Clovelly Primrose	Mature	26-9-49	180	7·5	3,120	4·29	134·04	Koojan Monogram (4174)
Clovelly Twinkle	Mature	20-5-49	90	11	1,200	5·15	61·86	Lansdowne Polydymite (4995)
Clovelly Blossom 2nd	Senior 4 years	8-5-49	240	10·5	4,740	5·18	245·70	Denmark Rosa's Ace (5760)
Clovelly Pansy 2nd	Senior 2 years	4-5-49	273	13·5	5,260	4·90	257·65	Denmark Rosa's Ace (5760)
Clovelly Bluebell 2nd	Senior 2 years	23-6-49	240	7	4,890	5·06	247·29	Pleasant Bank's Windsor (7820)
Clovelly Verna	Senior 2 years	21-7-49	240	7	4,560	5·12	233·52	Denmark Rosa's Ace (5760)
Clovelly Windsor Stella	Senior 2 years	4-5-49	273	4	4,332	4·78	207·17	Pleasant Bank's Windsor (7820)
Clovelly Pixie 2nd	Junior 2 years	2-10-49	210	3	4,215	4·66	196·32	Pleasant Bank's Windsor (7820)

No. of Cows in Average, 18. Average Milk, 4,879 lb. Average Test, 4·74 per cent. Average Butterfat, 231·45 lb.

PURE BRED HERD TESTING—continued.

COWS WHICH COMPLETED TEST DURING THE TWELVE MONTHS ENDED 30TH JUNE, 1950—*continued.*

GUERNSEYS.

Name of Cow.	Age Class.	Date of Entry to Test.	No. of Days in Test.	Weight of Milk on Last Day of Test. lb.	Weight of Milk for Period. lb.	Average Test. %	Weight of Butterfat for Period. lb.	Sire.
A. S. FERRY.								
Woodford Julie's Buttercup	Mature	27-10-48	273	17·5	8,272	4·64	384·16	Yarraview Julian (4634)
Woodford Dainty	Mature	5-5-49	273	11	6,873	5·44	373·81	Yarraview Clarinet 2nd (4629)
Woodford Julie's Primrose	Mature	17-5-49	210	4	4,050	5·57	225·48	Yarraview Julian (4634)
Woodford Julie's Buttercup	Mature	11-10-49	90	31	3,480	5·03	175·08	Yarraview Julian (4634)
Woodford Iona	Junior 4 years	30-10-49	30	19	570	3·55	20·22	Brookfield's Belief (6820)
Woodford Chosen	Senior 3 years	12-8-49	150	10	2,940	5·96	175·26	Brookfield's Belief (6820)
Woodford Iona	Junior 3 years	26-12-48	273	3	3,864	4·27	164·82	Brookfield's Belief (6820)
Woodford Heather	Senior 2 years	26-5-49	180	8	3,000	4·43	133·02	Brookfield's Belief (6820)
Woodford Tiny	Senior 2 years	10-8-49	150	10	2,190	5·36	117·36	Brookfield's Belief (6820)
Woodford Twinkle	Senior 2 years	8-9-49	120	15	2,820	3·57	100·68	Brookfield's Belief (6820)
Woodford Dairy Maid	Senior 2 years	28-5-49	90	17·5	2,055	4·49	92·40	Brookfield's Belief (6820)
Woodford Marie	Junior 2 years	9-5-49	240	6	3,420	5·37	183·69	Brookfield's Belief (6820)
Woodford Twinkle	Junior 2 years	3-10-48	273	4·5	4,288	4·13	177·27	Brookfield's Belief (6820)
Woodford Jingle	Junior 2 years	3-8-49	120	9·5	1,950	5·47	106·59	Brookfield's Belief (6820)
No. of Cows in Average, 9.	Average Milk, 4,322 lb.			Average Test, 4·95 per cent.			Average Butterfat, 214·99 lb.	
K. CHAPMAN.								
Whitmore Rosebud 4th	Mature	20-8-49	150	24·5	5,235	5·17	270·78	Lansdowne Dymphna's Climax (5693)
Brookfields Beauty	Mature	25-8-49	120	22	3,630	4·82	175·26	Koojan Ace's Majestic (2735)
Mayvale Ace's Butterfly	Mature	8-9-49	120	24	3,675	4·37	160·82	Koojan Ace's Dauntless (5933)
Whitmore Blossom	Senior 4 years	9-5-49	180	12·5	3,495	5·39	188·46	Lansdowne Dymphna's Climax (5963)
Strathmore Marigold	Junior 3 years	9-49	120	19·5	3,645	4·95	180·63	Mayvale Dauntless (7532)
Strathmore Bessie	Senior 2 years	14 -49	180	17	3,645	4·33	157·92	Mayvale Dauntless (7532)
Strathmore Sunbeam	Junior 2 years	5-7	180	14	3,810	5·29	201·66	Mayvale Dauntless (7532)
Number of Cows in Average, 4.	Average Milk, 4,046 lb.			Average Test, 5·06 per cent.			Average Butterfat, 204·70 lb.	

JERSEYS.

D. BRADFORD.								
Kapara Happy Days 2nd	Mature	8-5-49	90	32	2,880	5·39	155·40	Grantham Easter Oxford (14677)
Kapara Peerless Lily	Junior 4 years	28-5-49	90	23	2,310	5·06	117·00	Congelin Mandarin (14542)
Kapara Sweet Briar	Junior 4 years	9-7-49	30	45	1,350	5·43	73·32	Congelin Mandarin (14542)
Kapara Iolanthe 2nd	Junior 4 years	28-7-49	30	26	780	6·05	47·19	Congelin Mandarin (14542)
Kapara Sparkle's Lassie 4th	Senior 3 years	11-5-49	90	25	2,550	5·43	138·24	Congelin Washington (18426)
Kapara Jolly Handsone 2nd	Senior 3 years	18-6-49	60	34	1,980	5·70	112·92	Congelin Washington (18426)

Kapara Sweet Briar 2nd	Junior 3 years	1–8–49	273	25	10,260	5·87	602·81	Congelin Washington (18426)
Kapara Happy Day's 4th	Junior 3 years	21–6–49	273	23	8,364	5·69	475·87	Congelin Mandarin (14542)
Kapara Rosemarie	Junior 3 years	15–5–49	90	23	2,160	5·90	127·62	Congelin Mandarin (14542)
Kapara Fairy Queen	Junior 3 years	19–5–49	90	23	2,220	5·56	123·42	Congelin Washington (18426)
Kapara Venus	Senior 2 years	27–5–49	90	25	2,460	5·49	135·12	Congelin Mandarin (14542)
Kapara Tangerine	Senior 2 years	7–8–49	30	29	870	5·45	47·40	Grass Vale Twylish Lad (21816)
Kapara Rose Marie 2nd	Junior 2 years	22–6–49	273	17	7,461	6·48	483·34	Grass Vale Twylish Lad (21816)
Kapara Iolanthe's Beauty	Junior 2 years	9–9–49	30	34	1,020	4·84	49·38	Grass Vale Twylish Lad (21816)

Number of Cows in Average, 3. Average Milk, 8,695 lb. Average Test, 5·99 per cent. Average Butterfat, 520·67 lb.

T. H. WILDING.

Mokine Beauty	Mature	10–8–49	273	30	11,790	5·89	694·74	Erlwin Royal Volunteer (16491)
Mokine Daisy 2nd	Mature	20–1–49	273	25	8,535	5·80	495·08	Selsey Hall Boy (15136)
Mokine Empire's Twylish	Senior 4 years	9–2–49	273	23	7,044	6·40	451·01	Mokine Triumph (21019)
Mokine Daisy 4th	Junior 4 years	22–1–49	273	25	7,605	6·34	482·35	Mokine Reserve (21017)
Mokine Empire's Lily 45th	Senior 3 years	24–6–49	273	12	7,056	5·53	390·22	Mokine Reserve (21017)

Number of Cows in average, 5. Average Milk, 8,406 lb. Average Test, 5·98 per cent. Average Butterfat, 502·68 lb.

R. H. ROSE and SON.

Grassvale Silvermine 2nd	Mature	15–8–49	273	32	13,131	5·59	734·23	Mornmoot Northwood Beau (17798)
Grassvale Golden Cream 26th	Mature	13–6–49	273	20·5	9,691	6·27	607·49	Mornmoot Northwood Beau (17798)
Grassvale Eve	Mature	10–9–49	273	16·5	9,244	5·72	528·67	Mornmoot Northwood Beau (17798)
Grassvale Lady Fowler 39th	Mature	14–7–49	273	18	9,834	5·36	527·15	Mornmoot Northwood Beau (17798)
Grassvale Silvermine 3rd	Mature	11–8–49	273	19	8,002	5·56	445·13	Mornmoot Northwood Beau (17798)
Grassvale Magnolia 5th	Mature	7–7–49	210	12·5	7,585	4·93	373·65	Grassvale Gold Cup (20745)
Grassvale Buttercup 17th	Senior 4 years	16–7–49	273	27	11,136	5·86	652·79	Mornmoot Northwood Beau (17798)
Grassvale Designs Magnolia	Senior 4 years	6–7–49	273	8	7,929	5·69	451·17	Mornmoot Northwood Beau (17798)
Grassvale Silvermine 4th	Junior 4 years	23–3–49	273	15·5	7,051	6·01	423·91	Mornmoot Northwood Beau (17798)
Grassvale Buttercup 19th	Senior 3 years	23–6–49	90	39	3,840	4·23	162·39	Glen Iris Golden Oxford (12694)
Grassvale Lady Fowler 47th	Junior 3 years	10–6–49	273	15	7,470	5·79	432·18	Glen Iris Golden Oxford (12694)
Grassvale Golden Cream 30th	Senior 2 years	20–10–48	273	29·5	8,098	5·17	418·38	Mornmoot Northwood Beau (17798)
Grassvale Lady Fowler 50th	Senior 2 years	2–8–49	273	5	5,910	5·66	334·40	Mornmoot Northwood Beau (17798)
Grassvale Lady Fowler 53rd	Junior 2 years	2–7–49	273	31	9,608	5·11	490·67	Mornmoot Paxie's Brigadier 3rd (2978)
Grassvale Lady Fowler 54th	Junior 2 years	19–7–49	273	27·5	8,722	5·34	465·64	Mornmoot Paxie's Brigadier 3rd (2978)
Grassvale Oxford Nora 2nd	Junior 2 years	18–11–48	273	24	7,002	5·33	373·08	Glen Iris Golden Oxford (12694)
Grassvale Magnolia 12th	Junior 2 years	5–7–49	273	19	5,652	5·97	337·20	Belgonia Peggy 6th's Aim. (17263)
Grassvale Peggy's Noella	Junior 2 years	14–6–49	273	12	5,691	5·64	320·72	Belgonia Peggy 6th's Aim. (17263)

Number of cows in Average, 17. Average Milk, 8,422 lb. Average Test, 5·59 per cent. Average Butterfat, 471·46 lb.

J. C. BUSHELL.

Juadine Peggy	Mature	26–6–49	273	9	7,257	5·45	395·66	Austral Park Wonderful Standard (12423)
Travalgan Starbright 23rd	Mature	17–5–49	60	29	1,740	5·54	96·36	Orphanage Douglas (18919)
Trelawney Lighty	Senior 3 years	22–5–49	273	25	9,045	6·07	548·93	Greenmount Golden Patch (19603)
Trelawney Starbright 2nd	Junior 3 years	1–7–49	273	16	7,368	5·92	436·57	Juadine Commander (1397)
Trelawney Gingerbread	Senior 2 years	29–12–48	273	25	7,365	5·95	438·41	Greenmount Golden Patch (19603)
Trelawney Radium Lassie 2nd	Junior 2 years	28–5–49	273	24	7,572	5·98	453·09	Juadine Commander (1397)
Trelawney Golden Ray	Junior 2 years	18–6–49	273	18	7,254	6·02	436·78	Juadine Commander (1397)
Trelawney Sadie	Junior 2 years	25–5–49	273	11	5,043	5·90	297·79	Juadine Commander (1397)

Number of cows in Average, 7. Average Milk, 7,272 lb. Average Test, 5·91 per cent. Average Butterfat, 429·60 lb.

PURE BRED HERD TESTING—continued.

COWS WHICH COMPLETED TEST DURING THE TWELVE MONTHS ENDED 30TH JUNE, 1950—*continued.*

JERSEYS.

Name of Cow.	Age Class	Date of Entry to Test.	No. of Days in Test.	Weight of Milk on Last Day of Test. lb.	Weight of Milk for Period. lb.	Average Test. %	Weight of Butterfat for Period. lb.	Sire.
C. E. JACKSON.								
Chenar Aileen	Mature	15 12–48	273	25	7,485	6·90	516·67	Greenmount Golden Mariposa (16541)
Chenar Mavis	Mature	5 9–49	240	7·5	7,020	4·86	341·22	Travalgan Starbright's Altitude (12260)
Juadine March Flower 4th	Senior 3 years	10–10–49	120	13	2,850	6·22	177·27	Juadine Volunteer (20842)
Number of cows in Average, 3.	Average Milk, 6,742 lb.		Average Test, 5·93 per cent.			Average Butterfat, 400·47 lb.		
T. M. SMITH.								
Ardersier Starlight Lady	Junior 4 years	27–9–49	273	17·5	6,892	6·84	463·20	Orphanage Cuba (17913)
Ardersier Wyandotte's Pride	Junior 4 years	5–9–49	273	9	7,437	6·15	457·11	Orphanage Cuba (17913)
Ardersier Snow Queen	Junior 4 years	26–8–49	273	17·5	7,297	6·14	448·01	Orphanage Cuba (17913)
Ardersier Primrose	Junior 4 years	19–8–49	273	8	5,964	6·03	359·85	Ardersier Northern King (20338)
Ardersier White Stockings	Senior 2 years	9–2–49	273	8·5	2,620	7·62	199·68	Ardersier Northern King (20338)
Number of Cows in Average, 5.	Average Milk, 6,042 lb.		Average Test, 6·38 per cent.			Average Butterfat, 385·57 lb.		
C. H. IRONMONGER.								
Colmyn Empress	Mature	2–9–49	273	13	8,174	5·85	478·64	Greenmount Cream Lad (18,577)
Colmyn Golden Daffodil	Mature	15–12–48	273	22	7,626	4·55	347·40	Clarenden Eyre Golden Oxford (13,606)
Colmyn Coral	Mature	26–11–48	273	18	6,819	4·79	326·87	Greenmount Cream Lad (18,577)
Colmyn Golden Margot	Mature	7–4–49	30	31	930	4·21	39·18	Clarenden Eyre Golden Oxford (13,606)
Colmyn Adelaide	Junior 2 yrs.	2–4–49	273	27	7,461	5·68	423·79	Eungella Prince Starbright (19,538)
Colmyn Sylvia	Junior 2 yrs.	29–3–49	273	24	6,972	4·60	320·83	Eungella Prince Starbright (19,538)
Colmyn Elizabeth	Junior 2 yrs.	11–9–49	273	18	6,129	5·20	318·61	Eungella Prince Starbright (19,538)
Colmyn Rosemary	Junior 2 yrs.	10–3–49	273	28	6,234	4·94	307·30	Eungella Prince Starbright (19,538)
Colmyn Pamela	Junior 2 yrs.	9–9–49	273	13·5	5,850	4·97	290·96	Eungella Prince Starbright (19,538)
No. of cows in Average, 8	Average Milk, 6,908 lb.		Average Test, 5·09 per cent.			Average butterfat, 351·92 lb.		
G. LAYMAN.								
Carydale Precious 757	Mature	4–4–49	60	28	1,680	4·51	75·84	Hopeland's Pattern (18,624)
Carydale Royal Princess	Senior 3 yrs.	3–4–49	240	27	7,905	5·81	459·27	Juadine Royal (20,841)
Carydale Royal Queen	Senior 3 yrs.	27–3–49	240	21	6,825	5·68	388·08	Juadine Royal (20,841)
Carydale Peerless Lily	Senior 3 yrs.	25–3–49	240	19	5,700	6·66	379·90	Juadine Northwood Beau (19,670)

Carydale Royal Twinkle	Junior 3 yrs.	25-3-49	240	20	7,050	5·04	355·20	Juadine Royal (20,841)
Carydale Royal Mischief	Senior 2 yrs.	27-3-49	210	18	4,755	5·13	243·87	Juadine Royal (20,841)
Carydale Peerless Lily 2nd	Junior 2 yrs.	6-3-49	273	17	5,531	7·47	413·35	Juadine Royal (20,841)
Carydale Royal Fairy	Junior 2 yrs.	6-3-49	273	18	6,594	5·43	358·04	Juadine Royal (20,841)
Carydale Lace Pattern	Junior 2 yrs.	6-4-49	240	19	5,615	5·71	321·00	Hopeland's Pattern (18,624)
Carydale Royal Snowdrop	Junior 2 yrs.	19-6-49	150	24	4,230	5·75	243·15	Juadine Royal (20,841)

No. of Cows in Average, 9. Average milk, 6,023 lb. Average test, 5·83 per cent. Average Butterfat, 351·31 lb.

W. H. and T. F. ROBINSON.

Travalgan Lady Eion 27th	Junior 4 yrs.	4-8-49	273	13	7,614	6·41	487·98	Mornmoot Laver (17,792)
Travalgan Lady Eion 29th	Junior 4 yrs.	17-9-49	273	22	6,876	6·24	429·63	Mornmoot Laver (17,792)
Travalgan Lady Eion 33rd	Senior 3 yrs.	3-7-49	273	10·5	6,136	5·38	330·33	Mornmoot Laver (17,792)
Travalgan Starbright 39th	Junior 3 yrs.	21-8-49	273	22	6,741	5·74	387·16	Mornmoot Laver (17,792)
Travalgan Starbright 38th	Junior 3 yrs.	3-7-49	273	10·5	5,606	6·09	341·29	Mornmoot Laver (17,792)
Travalgan Lady Eion 36th	Senior 2 yrs.	17-7-49	273	13·5	6,325	5·79	366·36	Mornmoot Laver (17,792)
Travalgan Lady Mint 10th	Senior 2 yrs.	22-7-49	273	6·5	4,864	5·81	282·59	Mornmoot Laver (17,792)
Travalgan Lady Mint 11th	Senior 2 yrs.	18-8-49	273	12	4,206	6·59	277·24	Mornmoot Laver (17,792)
Travalgan Starbright 33rd	Senior 2 yrs.	23-12-48	240	20	4,530	5·66	256·53	Mornmoot Laver (17,792)
Travalgan Lady Eion 37th	Senior 2 yrs.	12-9-49	30	30	900	4·70	42·33	Mornmoot Laver (17,792)

Number of Cows in average, 9. Average Milk, 5,877 lb. Average Test, 5·97 per cent. Average Butterfat, 351·01 lb.

D. G. SPARK.

Eungella Faline	Mature	7 6-49	273	14·5	9,673	5·27	510·03	Travalgan Starbright King (18129)
Camden Celeste	Mature	10-5-49	273	10	7,195	5·38	384·72	Greenmount Golden Bobby (18578)
Eungella Telopia	Mature	6-5-49	273	11·5	5,869	6·01	352·67	Travalgan Starbright King (18129)
Eungella Dark Venus	Mature	13-6-49	240	4	5,505	5·01	275·71	Travalgan Starbright King (18129)
Eungella Bopeep	Mature	4-5-50	30	8·5	255	3·94	10·05	Greenmount Golden Sovereign (14687)
Eungella Marlene	Junior 4 years	16-5-49	273	10	6,660	4·80	321·24	Hopelands Marinora's Star (20814)
Eungella Jessamine	Junior 4 years	28-6-49	210	17	5,295	5·33	282·24	Hopelands Marinora's Star (20814)
Eungella Little Gem	Senior 3 years	12-5-49	273	11	6,003	5·75	344·98	Hopelands Marinora's Star (20814)
Eungella Miss Marinora	Senior 3 years	20-5-49	273	11	6,138	5·51	338·57	Hopelands Marinora's Star (20814)
Eungella Pepita	Senior 3 years	30-4-49	273	14	5,427	5·26	287·23	Hopelands Marinora's Star (20814)
Eungella Miss Marinora 2nd	Junior 3 years	25-7-49	273	15	7,185	5·22	375·11	Hopelands Marinora's Star (20814)
Eungella Gaiety Girl	Junior 3 years	3-8 49	273	14·5	6,778	4·85	328·51	Hopelands Marinora's Star (20814)
Eungella Athena	Junior 3 years	28-6-49	240	11·5	4,765	5·93	282·84	Hopelands Marinora's Star (20814)
Eungella Ballerina	Junior 3 years	4-5-49	273	10	5,640	4·71	265·51	Hopelands Marinora's Star (20814)
Eungella Annette	Senior 2 years	17-5-49	273	12	6,711	4·98	334·33	Hopelands Marinora's Star (20814)
Eungella Laurette	Junior 2 years	10-5-49	273	11	5,508	5·61	308·86	Hopelands Marinora's Star (20814)
Eungella Olivette	Junior 2 years	30-4-49	273	10	5,935	4·65	275·98	Grass Vale Beaufighter (1323)
Eungella Mignonette	Junior 2 years	11-5-49	273	10	4,740	5·28	250·21	Hopeland's Marinora's Star (20814)
Eungella Clarionette	Junior 2 years	5-5-49	273	7·5	4,567	5·23	253·52	Grass Vale Beaufighter (1323)
Eungella Sparklette	Junior 2 years	15-2-49	273	7·5	3,517	6·14	215·92	Grass Vale Beaufighter (1323)
Eungella Babette	Junior 2 years	7-6-49	210	10	3,975	5·07	201·66	Hopelands Marinora's Star (20814)
Eungella Jeanette	Junior 2 years	10-2-47	273	10	3,390	4·25	144·39	Hopelands Marinora's Star (20814)

No. of Cows in Average, 21. Average Milk, 5,738 lb. Average Test, 5·24 per cent. Average Butterfat, 301·15 lb.

PURE BRED HERD TESTING—continued.

COWS WHICH COMPLETED TEST DURING THE TWELVE MONTHS ENDED 30TH JUNE, 1950—*continued.*

JERSEYS.

Name of Cow.	Age Class.	Date of Entry to Test.	No. of Days in Test.	Weight of Milk on Last Day of Test. lb.	Weight of Milk for Period. lb.	Average Test %	Weight of Butterfat for Period. lb.	Sire.
C. J. CUNNINGHAM.								
Walgett Joy's Gift	Mature	19-4-49	273	14	8,052	4·72	380·12	Selsey Wyandotte's Prince (18058)
Walgett Ranunculus	Mature	19-4-49	273	11	7,053	4·78	337·25	Selsey Wyandotte's Prince (18058)
Walgett Handsome Girl 33rd	Mature	18-4-49	273	11	5,643	5·77	325·55	Selsey Wyandotte's Prince (18058)
Walgett Jocelyn	Mature	17-4-49	273	10	6,210	5·23	324·83	Selsey Wyandotte's Prince (18058)
Walgett Royal Joy	Mature	17-4-49	273	10	5,250	5·91	310·25	Selsey Wyandotte's Prince (18058)
Walgett Handsome Girl 29th	Mature	10-5-49	240	9	5,175	5·92	306·66	Selsey Wyandotte's Prince (18058)
Walgett Handsome Girl 30th	Mature	3-5-49	240	15	5,730	5·09	291·96	Selsey Wyandotte's Prince (18058)
Walgett Handsome Girl 25th	Mature	10-4-49	273	11	5,793	5·03	291·56	Selsey Wyandotte's Prince (18058)
Walgett Delightful	Mature	5-4-49	273	12	6,036	4·79	289·42	Selsey Wyandotte's Prince (18058)
Walgett Lady Wyandotte	Mature	8-6-49	210	11	6,090	4·53	275·82	Selsey Wyandotte's Prince (18058)
Walgett Fondant	Mature	24-4-49	240	7	4,650	5·55	258·30	Selsey Wyandotte's Prince (18058)
Walgett Melanie	Mature	15-6-49	210	9	4,320	4·91	212·21	Selsey Wyandotte's Prince (18058)
Walgett Handsome Girl 37th	Senior 4 years	12-4-49	273	9	5,322	5·47	290·98	Selsey Wyandotte's Prince (18058)
Walgett Easter Tulip	Junior 4 years	5-5-49	240	9·5	6,195	4·90	303·47	Selsey Wyandotte's Prince (18058)
Walgett Handsome Girl 39th	Junior 4 years	24-4-49	240	8	4,740	5·97	283·07	Selsey Wyandotte's Prince (18058)
Walgett Joyce	Junior 4 years	6-7-49	180	17	5,040	5·19	261·75	Selsey Wyandotte's Prince (18058)
Walgett Joyful Maid	Senior 3 years	14-4-49	273	11	5,928	5·74	340·50	Selsey Wyandotte's Prince (18058)
Walgett Tuber Rose	Senior 3 years	20-4-49	273	8·5	5,260	5·69	299·53	Selsey Wyandotte's Prince (18058)
Walgett Golden Glory	Junior 3 years	12-5-49	210	14	3,930	5·42	212·97	Selsey Wyandotte's Prince (18058)
Walgett Handsome Girl 46th	Junior 3 years	3-6-49	210	10·5	4,125	5·16	212·79	Selsey Wyandotte's Prince (18058)
Walgett Handsome Girl 43rd	Senior 2 years	17-4-49	273	10	4,410	5·83	257·07	Selsey Wyandotte's Prince (18058)
Walgett Handsome Girl 44th	Senior 2 years	26-4-49	240	11	4,620	5·46	252·62	Selsey Wyandotte's Prince (18058)
Walgett Handsome Girl 47th	Senior 2 years	2-5-49	240	10	4,545	5·21	236·64	Mornmoot Paxie's Captain 2nd (697)
Walgett Princess Joy	Senior 2 years	14-4-49	273	9	4,227	5·54	243·11	Selsey Wyandotte's Prince (18058)
Walgett Proud Fairie	Senior 2 years	27-4-49	210	12·5	3,435	5·04	173·10	Mornmoot Paxie's Captain 2nd (697)
Walgett Heiress	Junior 2 years	27-4-49	240	10	4,080	5·38	219·81	Mornmoot Paxie's Captain 2nd (697)
Walgett Rose	Junior 2 years	24-6-49	210	7	3,690	5·18	191·28	Mornmoot Paxie's Captain 2nd (697)
Walgett Handsome Girl 53rd	Junior 2 years	25-7-49	180	11·5	3,705	5·01	185·85	Mornmoot Paxie's Captain 2nd (697)
Walgett Handsome Girl 49th	Junior 2 years	25-4-49	240	9	3,330	5·42	180·37	Mornmoot Paxie's Captain 2nd (697)
Walgett Dreaming Jess	Junior 2 years	6-8-49	150	11	3,090	4·78	147·98	Mornmoot Paxie's Captain 2nd (697)
Walgett Handsome Girl 52nd	Junior 2 years	25-8-49	150	9·5	2,835	4·94	140·10	Mornmoot Paxie's Captain 2nd (697)
Walgett Handsome Girl 48th	Junior 2 years	25-4-49	180	11	2,445	5·30	129·75	Mornmoot Paxie's Captain 2nd (697)
Walgett Twylish Lass	Junior 2 years	10-7-49	180	5	2,400	5·39	129·45	Mornmoot Paxie's Captain 2nd (697)

No. of Cows in Average, 33. Average Milk, 4,768 lb. Average Test, 5·27 per cent. Average Butterfat, 277·90 lb.

MRS. A. G. ECKERSLEY.

Camden Charmaine	Mature	23–1–49	273	8	4,564	5·66	258·55	Greenmount Golden Bobby (18578
Korijekup Nadine	Mature	10–11–49	150	20	4,275	4·60	196·71	Juadine Captain (20840)
Camden Charmaine	Mature	25–12–49	120	24	3,570	4·93	176·28	Greenmount Golden Bobby (18578)
Korijekup Lilian	Junior 4 years	16–9–49	210	12	4,800	6·01	288·36	Navua Royal Star (15869)
Korijekup Norma	Junior 3 years	4–3–49	273	18	6,504	4·83	314·57	Navua Royal Star (15869)
Korijekup Nona	Junior 3 years	4–10–49	210	22	7,140	4·02	287·10	Navua Royal Star (15869)
Korijekup Needa	Junior 3 years	4–5–49	120	8	1,950	5·93	115·72	Juadine Captain (20840)
Korijekup Lila	Senior 2 years	6–3–50	30	24	720	4·31	31·05	Windrest Cheviot Roseboy (1011)
Korijekup Nona	Junior 2 years	6–11–48	273	18·5	6,860	4·64	318·22	Navua Royal Star (15869)

No. of Cows in Average, 6. Average Milk, 5,690 lb. Average Test, 4·87 per cent. Average Butterfat, 277·25 lb.

T. O. ABBOTT.

Camden Cleopatra	Mature	19–4 49	180	8	3,345	6·52	218·13	Greenmount Golden Sultan (14688)
Amaroo Winsome	Senior 4 years	30–4–49	273	9	5,502	5·82	320·53	Greenmount Starbright (20748)
Amaroo Helena	Junior 4 years	21–4–49	273	7	5,361	4·97	266·77	Eungella Golden Starbright (20666)
Amaroo Marion	Senior 3 years	17–4–49	273	6	4,473	5·07	227·04	Eungella Golden Starbright (20666)
Amaroo Cleo	Junior 3 years	29–5–49	273	8	6,099	5·01	305·49	Eungella Golden Starbright (20666)
Amaroo Troy	Junior 3 years	24–6–49	273	4	5,007	5·66	283·57	Eungella Golden Starbright (20666)
Amaroo Cleopatra	Junior 2 years	21–4–49	273	11	6,108	5·91	300·16	Eungella Golden Starbright 20666)
Amaroo Beauty	Junior 2 years	2–5–49	273	5·5	3,461	7·97	276·65	Eungella Golden Starbright (20666)
Amaroo Chimes	Junior 2 years	28–4–49	273	9·5	5,563	4·79	266·40	Eungella Golden Starbright (20666)
Amaroo Chiming Bell	Junior 2 years	14–5–49	273	9	4,482	5·59	250·60	Eungella Golden Starbright (20666)
Amaroo Joybell	Junior 2 years	24–4–49	273	8	5,454	4·31	234·98	Amaroo Delano (1058)

Number of Cows in Average, 11. Average Milk, 4,988 lb. Average Test, 5·38 per cent. Average Butterfat, 268·21l b.

B. LANGRIDGE.

Camden Pit-a-Pat 2nd	Mature	25–6–49	273	14·5	8,383	5·34	447·54	Greenmount Golden Sultan (14688)
Mereworth Oxford Montrose	Mature	21–7–49	273	14·5	7,648	4·66	356·77	Clarendon Eyre Oxford Pioneer (11484)
Mereworth Starbright Audrey 6th	Mature	23–6–49	273	9·5	6,733	4·92	331·62	Clarendon Eyre Oxford Pioneer (11484)
Mereworth Coronation Vanilla	Mature	10–7–49	273	12·5	5,947	5·34	317·55	Navua Coronation Star (14929)
Mereworth Starbright's Belvedere 6th	Mature	8–2–49	273	18·5	5,725	4·93	282·34	Walgett Campanile's Chief (16167)
Mereworth Dreaming Fondant	Mature	1–7–49	273	12	4,926	5·18	255·02	Navua Coronation Star (14929)
Grantham Silvermine 4th	Mature	10–3–49	273	6	4,878	4·27	208·48	Rosecliffe Marchalong (15094)
Mereworth Oxford Buttercup 2nd	Mature	29–11–49	120	23	3,330	4·54	151·14	Clarendon Eyre Oxford Pioneer (11484)
Mereworth Butter Queen 8th	Senior 3 years	2–10–49	273	14	5,247	4·96	260·53	Rosecliffe Marchalong (15094)
Mereworth Coronation Princess	Senior 2 years	9–7–49	273	16	6,648	5·05	335·48	Navua Coronation Star (14929)
Mereworth Marchalong's Fondant	Senior 2 years	20–2–49	273	15	5,460	4·88	266·35	Grantham Easter's Marchalong (20736)
Mereworth Marchalong's Starbright	Junior 2 years	22–9–49	273	10·5	4,936	5·21	257·05	Grantham Easter's Marchalong (20736)
Mereworth Marchflower Princess	Junior 2 years	3–10 49	273	11	4,863	4·71	229·21	Rosecliffe Marchalong (15094)
Mereworth Easter's Buttercup 2nd	Junior 2 years	5–9–49	273	2·5	4,117	4·66	191·76	Grantham Easter's Marchalong (20736)
Mereworth Marchalong's Buttercup	Junior 2 years	5–9–49	273	10·5	4,486	4·15	186·22	Grantham Easter's Marchalong (20736)
Mereworth Oxford Silvermine 2nd	Junior 2 years	22–2–49	210	12·5	3,240	5·13	166·32	Mereworth Fondants Oxford (1537)
Mereworth Marchalong Dream	Junior 2 years	5–10–49	210	8	3,195	4·92	157·32	Grantham Easter's Marchalong (20736)

Number of Cows in Average, 16. Average Milk, 5,402 lb. Average Test, 4·91 per cent. Average Butterfat, 265·65 lb.

PURE BRED HERD TESTING—continued.

COWS WHICH COMPLETED TEST DURING THE TWELVE MONTHS ENDED 30TH JUNE, 1950—*continued.*

JERSEYS.

Name of Cow.	Age Class.	Date of Entry to Test.	No. of Days in Test.	Weight of Milk on Last Day of Test. lb.	Weight of Milk for Period. lb.	Average Test. %	Weight of Butterfat for Period. lb.	Sire.
W. L. BRADFORD.								
Kapara Valentine	Mature	29-5-49	240	19	6,450	4·69	302·72	Kapara Cream Sox (20860)
Kapara Dairymaid 2nd	Mature	7-9-49	240	11·5	6,030	4·40	265·41	Congelin Jolly Eminent 3rd (18425)
Kapara Sparkle's Lassie 2nd	Mature	27-2-49	240	23	6,050	4·20	254·10	Congelin Jolly Eminent 3rd (18425)
Kapara Sparkle 4th	Mature	25-6-49	210	14	5,040	4·79	241·46	Congelin Jolly Eminent 3rd (18425)
Kapara Rosebud 2nd	Senior 4 years	24-3-49	273	15	6,210	5·88	365·36	Congelin Jolly Eminent 3rd (18425)
Kapara Duchess 2nd	Senior 4 years	31-3-49	273	17	6,516	4·83	314·80	Congelin Jolly Eminent 3rd (18425)
Kapara Dairymaid 3rd	Senior 4 years	6-8-49	273	7·5	6,742	4·65	313·72	Congelin Mandarin (14542)
Kapara Firefly 2nd	Senior 4 years	24-3-49	273	15	5,685	4·57	259·71	Congelin Mandarin (14542)
Kapara Sparkle's Lassie 3rd	Senior 4 years	8-4-49	273	10	4,875	4·51	220·05	Congelin Jolly Eminent 3rd (18425)
Kapara Dairymaid 2nd	Junior 4 years	31-10-48	240	25	6,675	4·69	313·26	Congelin Jolly Eminent 3rd (18425)
Kapara Sweet Nell	Senior 2 years	23-4-49	240	11	4,615	4·57	211·08	Grass Vale Twylish Lad (21816)
Kapara Madeira	Senior 2 years	6-3-49	120	15·5	2,010	4·85	97·50	Grass Vale Twylish Lad (21816)
Kapara Valentine 2nd	Senior 2 years	17-3-49	120	14·5	1,545	4·61	71·22	Grass Vale Twylish Lad (21816))
Kapara Jane	Senior 2 years	15-3-50	90	9	1,080	3·22	34·83	Grass Vale Twylish Lad (21816)
Nerrin Nerrin Gaiety	Junior 2 years	9-5-49	273	13	6,159	4·95	304·68	Kapara Eminent Mariner 3rd (1422)
Nerrin Nerrin Talisman	Junior 2 years	19-4-49	273	13	4,629	5·89	272·69	Grass Vale Twylish Lad (21816)
Kapara Twylish Lady	Junior 2 years	5 8-49	273	5	4,650	5·45	253·27	Kapara Eminent Mariner 3rd (1422)
Nerrin Nerrin Victorious	Junior 2 years	2 4-49	273	16	5,043	4·53	228·89	Congelin Washington (18426)
Kapara Jane	Junior 2 years	1-5-49	240	15	4,665	4·75	221·67	Grass Vale Twylish Lad (21816)
Nerrin Nerrin Dainty Lady	Junior 2 years	4-9-49	150	15	2,790	4·56	127·26	Grass Vale Twylish Lad (21816)

Number of Cows in Average, 17. Average Milk, 5,460 lb. Average Test, 4·81 per cent. Average Butterfat, 262·94 lb.

K. V. GRAY.								
Juadine Fairy	Mature	6 7 49	240	8	5,445	6·26	340·95	Juadine Northwood Beau (19670)
Greenmount Marion	Mature	30 8-49	273	15·5	7,401	4·56	337·72	Belgonia Peggie 6th's Aim (17263)
Camden Milkmaid	Mature	9 6-49	273	12	5,226	4·58	239·61	Greenmount Starbright (20748)
Camden Circe	Mature	25 1-49	150	8·5	1,680	5·59	93·90	Greenmount Golden Sultan (14688)
Yalebra Lady	Junior 4 years	7-10-49	273	15	6,165	4·11	290·47	Mokine Reserve (21017)
Juadine Queen 3rd	Junior 4 years	18-2-49	180	17·5	3,150	4·45	139·44	Juadine Volunteer (20842)
Yalebra Roma	Senior 3 years	7-4 49	273	12	4,776	4·87	232·72	Greenmount Golden Patch (19603)
Yalebra Baronia	Junior 3 years	1 6-49	273	11·5	5,449	4·24	231·13	Radyr Park June Lad (26494)
Yalebra Goldilocks	Junior 3 years	2-7 49	273	5·5	3,826	5·86	224·40	Grass Vale Beau Boy (14684)
Yalebra June's Marion	Junior 2 years	22-8-49	273	25	6,945	4·87	337·94	Radyr Park June Lad (26494)
Yalebra Rosemary	Junior 2 years	21-8-49	273	16	5,748	3·83	220·44	Radyr Park June Lad (26494)
Grantham Peerless Fairy	Junior 2 years	19-12-48	273	14·5	3,763	5·62	211·66	Juadine Volunteer (20842)
Yalebra Dewdrop	Junior 2 years	12-9-49	273	8	3,429	6·09	209·09	Nyroca Lily's Design (1607)
Yalebra Empire Lass	Junior 2 years	3-6-49	60	23·5	1,230	4·03	49·56	Korijekup Evening Star

No. of Cows in Average 13. Average Milk 4,846 lb. Average Test, 4·93 per cent. Average Butterfat, 239·19 lb.

L. M. TEMPLE.

Radyr Park September's Estrellita	Mature	6–7–49	273	11	6,438	5·29	341·10	Navua September Lad (14203)
Radyr Park Dorothy 29th	Mature	5–8–49	240	14	6,215	5·13	318·72	Radyr Park Estrellita's 2nd Starlight (21187)
Radyr Park Dorothy 16th	Mature	9–4–49	273	10	5,181	5·25	272·14	Navua Coronation Star (14929)
Radyr Park Dorothy 19th	Mature	27 12–48	273	16	5,703	4·64	264·91	Navua Coronation Star (14929)
Radyr Park Dorothy 4th	Mature	22–10–48	273	8	5,169	5·03	260·01	Greenmount Graceful Lad (7292)
Radyr Park Estrellita 5th	Mature	27–9–48	273	5	4,680	5·34	250·02	Navua September Lad (14023)
Radyr Park Dorothy 22nd	Mature	5–10–49	180	14	4,590	4·62	212·19	Radyr Park Estrellita's 2nd Starlight (21187)
Radyr Park Dorothy 14th	Mature	22–12–48	240	6	3,705	4·71	174·61	Navua September Lad (14023)
Radyr Park Dorothy 27th	Junior 4 years	17–11–48	240	8·5	4,755	5·51	262·23	Radyr Park Estrellita's 2nd Starlight (21187)
Radyr Park October Star 3rd	Junior 4 years	8–9–49	210	13·5	5,595	4·54	253·98	Radyr Park Estrellita's 2nd Starlight (21187)
Radyr Park Dorothy 32nd	Junior 4 years	30–7–49	240	9·5	4,955	5·09	252·45	Radyr Park Estrellita's 2nd Starlight (21187)
Radyr Park Dorothy 26th	Junior 4 years	13 12–48	180	10	3,930	5·30	208·59	Radyr Park Estrellita's 2nd Starlight (21187)
Radyr Park Dorothy 33rd	Junior 4 years	28–9–49	210	6	4,365	4·66	203·37	Radyr Park Estrellita's 2nd Starlight (21187)
Radyr Park Dorothy 33rd	Junior 3 years	31–10–48	240	6	5,010	5·36	268·92	Radyr Park Estrellita's 2nd Starlight (21187)
Radyr Park Dorothy 40th	Junior 3 years	20–10–49	180	11	3,405	5·35	182·13	Radyr Park Commando (1684)
Radyr Park Estrellita 6th	Senior 2 years	28–9–48	273	6	5,013	6·11	306·18	Radyr Park September Lad (825)
Radyr Park Dorothy 39th	Senior 2 years	5–2–49	180	7	1,755	4·55	79·83	Radyr Park September Lad (825)
Radyr Park Dorothy 44th	Junior 2 years	18–3–49	273	8	4,584	5·44	249·32	Radyr Park Commando (1684)
Radyr Park Dorothy 54th	Junior 2 years	11–6–49	273	..	4,530	5·24	237·50	Radyr Park September Lad (825)
Radyr Park Dorothy 49th	Junior 2 years	4–7–49	273	8	4,719	4·96	234·17	Radyr Park Corsair (3229)
Radyr Park Dorothy 43rd	Junior 2 years	15–11–48	273	8	3,914	5·82	227·73	Radyr Park September Lad (825)
Radyr Park Dorothy 41st	Junior 2 years	28–12–48	273	15	4,320	4·89	211·49	Radyr Park Commando (1684)
Radyr Park Clarionette 7th	Junior 2 years	22–4–49	240	12	2,270	6·37	144·60	Radyr Park September Lad (825)
Radyr Park Dorothy 46th	Junior 2 years	28–2–49	273	6	2,793	5·09	142·22	Radyr Park Commando (1684)
Radyr Park Dorothy 48th	Junior 2 years	2 5–49	60	15	840	6·05	50·79	Radyr Park September Lad (825)

No. of Cows in Average, 24. Average Milk, 4,483 lb. Average Test, 5·16 per cent. Average Butterfat, 231·60 lb.

MRS. M. A. WATSON.

Chillwell Zena's Buttercup	Senior 4 years	16–3–49	273	24	7,419	5·65	418·99	Grass Vale Noramine's Beau (19600)
Chillwell Julienne's Lily	Senior 4 years	30–4–49	240	13·5	4,890	5·04	246·30	Juadine Northwood Beau (19670)
Burlington Molly	Senior 3 years	16–2–49	273	19·5	6,108	5·46	333·80	Burlington Sultan (21613)
Chillwell Primrose Model	Senior 3 years	11 8–49	150	20	3,900	5·75	224·26	Travalgan Leader (958)
Chillwell Zena's Daphne	Senior 3 years	28–7–49	150	19	3,465	5·91	204·82	Travalgan Leader (958)
Chillwell Marigold Dawn	Junior 3 years	31–5–49	210	18	4,500	4·94	267·42	Travalgan Leader (958)
Chillwell Betty's Heather	Junior 3 years	30–7–49	150	18·5	3,825	5·39	206·16	Travalgan Leader (958)
Chillwell Mignonette Mimosa	Junior 3 years	7–8–49	150	15·5	2,955	6·09	180·03	Travalgan Leader (958)
Chillwell Hovea Madeira 2nd	Junior 3 years	30–8–49	120	17·5	2,280	6·13	139·95	Travalgan Leader (958)
Bellerive Attractive Josephine	Junior 3 years	2 10–49	90	24	2,340	5·52	129·24	Ardersier Northern King (20338)
Chillwell Godetia Gwen 2nd	Senior 2 years	1–6–49	210	12	3,210	4·64	149·10	Travalgan Leader (958)
Chillwell Carnation Queen	Senior 2 years	1 6–49	210	14	3,030	4·83	146·46	Travalgan Leader (958)
Bellerive Attractive Josephine	Junior 2 years	29–10–49	273	16	5,553	5·42	300·86	Ardersier Northern King (20338)
Chillwell Morning Glory	Junior 2 years	7–4–49	273	13	4,989	5·10	254·59	Travalgan Leader (958)
Chillwell Rose Mary	Junior 2 years	24–3–49	273	9	4,137	5·68	235·07	Travalgan Leader (958)
Chillwell Hovea Madeira 2nd	Junior 2 years	20–10–48	240	10	3,255	6·40	208·47	Travalgan Leader (958)
Chillwell Magnolia Girl	Junior 2 years	13–7–49	180	16	3,390	5·25	177·99	Travalgan Leader (958)
Chillwell Julienne's Jasmine	Junior 2 years	2–7–49	180	13	2,625	5·29	138·90	Travalgan Leader (958)
Chillwell Zena's Nemesia	Junior 2 years	13–9–49	90	20	1,980	5·64	111·84	Travalgan Leader (958)

No. of Cows in Average, 16. Average Milk, 4,203 lb. Average Test, 5·49 per cent. Average Butterfat, 230·82 lb.

PURE BRED HERD TESTING—continued.

COWS WHICH COMPLETED TEST DURING THE TWELVE MONTHS ENDED 30TH JUNE, 1950—*continued.*

JERSEYS.

Name of Cow.	Age Class	Date of Entry to Test.	No. of Days in Test.	Weight of Milk on Last Day of Test. lb.	Weight of Milk for Period. lb.	Average Test. %	Weight of Butterfat for Period. lb.	Sire.
MRS. M. A. CRUTE.								
Murra Murra Princess Royal	Mature	18-6-49	210	16	5,900	4·84	285·70	Grantham Easter's Monarch (11656)
Murra Murra Easter's Marita	Mature	12-4-49	273	12	6,276	4·45	279·30	Grantham Easter's Monarch (11656)
Murra Murra Golden Patch	Mature	23-7-49	180	14	5,280	4·76	251·43	The Wold Northwood King (19138)
Murra Murra Easter's Marina	Mature	15-2-49	273	11	4,203	5·63	236·70	Grantham Easter's Monarch (11656)
Murra Murra Easter's Twinklette	Mature	15-5-49	150	31	4,770	4·76	227·13	Grantham Easter's Monarch (11656)
Murra Murra Easter's Maid	Mature	23-6-49	60	16·5	495	5·20	52·29	Grantham Easter's Monarch (11656)
Murra Murra Silver Lady	Senior 3 years	23-4-49	240	11	4,965	4·94	245·39	The Wold Northwood King (19138)
Murra Murra Northwood Dewdrop 2nd	Junior 3 years	17-7-49	210	11	5,460	4·72	266·10	The Wold Northwood King (19138)
Murra Murra Marinora	Junior 3 years	1-8-49	180	14	4,515	4·41	199·22	The Wold Northwood King (19138)
Murra Murra Silver Bell 2nd	Junior 3 years	6-8-49	180	12	4,275	4·59	196·35	The Wold Northwood King (19138)
Murra Murra Marinita	Junior 3 years	1-7-49	180	11	3,489	5·07	176·52	The Wold Northwood King (19138)
Murra Murra Royal Lady 2nd	Junior 3 years	12-8-49	150	13	2,805	4·56	136·29	The Wold Northwood King (19138)
Murra Murra Winsome Lady	Junior 2 years	29-9-49	120	14·5	2,835	4·72	133·92	The Wold Northwood King (19138)
Number of Cows in Average, 11.		Average Milk, 4,754 lb.			Average Test, 4·78 per cent.		Average Butterfat, 227·29 lb.	
DAVIES and SONS.								
Mokine Twylish	Mature	29-7-49	180	5	3,930	4·04	158·66	Mokine Brigadier (18799)
Mokine Empire Lily 40th	Mature	10-8-49	150	2	2,430	4·38	106·44	Mokine Royal Dick (21018)
Travalgan Lady Eion 17th	Mature	19-11-49	120	7·5	1,365	5·00	68·34	Orphange Douglas (18919)
Mokine Empire Lily 37th	Mature	10-11-49	120	6	1,380	5·74	51·66	Mokine Brigadier (18799)
Burlington Sweet Wonder	Senior 4 years	3-8-49	240	4·5	4,620	5·25	242·73	Lawrenny Johnnie (16670)
Burlington Dairy Maid 3rd	Senior 4 years	1-8-49	180	5	5,885	3·39	199·23	Lawrenny Johnnie (16670)
Juadine Nancy 3rd	Senior 3 years	19-11-49	150	4·5	1,845	4·15	95·04	Juadine Volunteer (20842)
Mokine Empire's Twylish 20th	Junior 3 years	20-8-49	180	5	2,070	4·89	101·31	Mokine Brigadier (18799)
Vinewood Duchess Royal	Senior 2 years	3-8-49	180	4·5	1,650	5·91	97·53	Glenavon Diana's Lord (373)
Sunnyhurst Twylish	Junior 2 years	5-7-49	180	3·5	3,240	4·88	158·10	Mokine Empire's Reserve
Sunnyhurst Twylish Lass	Junior 2 years	25-11-49	150	6·5	1,695	5·10	86·52	Juadine Commander (1397)
Number of Cows in Average, 9.		Average Milk, 3,038 lb.			Average Test, 4·55 per cent.		Average Butterfat, 138·39 lb.	
RADFORD PARK CO.								
Radford Park Rose	Mature	13-9-49	90	21	2,370	4·79	113·55	Grass Vale Golden Lad (19599)
Radford Park Poppy Queen	Mature	7-6-49	120	6	1,665	4·53	75·45	Mokine Dunce (11896)
Radford Park Pansy	Mature	19-7-49	120	5	1,575	4·35	68·49	Grass Vale Golden Lad (19599)
Woodendale Ragtime's Violet	Mature	12-10-49	60	20	1,290	5·08	65·64	Spring Park Prince Ragtime (5942)
Radford Park Marigold	Mature	19-4-49	180	2	1,095	4·95	54·00	Mokine Dunce (11896)
Radford Park Lily	Mature	2-11-49	30	30	900	4·46	40·14	Grass Vale Golden Lad (19599)
Radford Park Boronia	Senior 4 years	14-9-49	30	18	540	4·70	25·38	Grass Vale Golden Lad (19599)
Radford Park Daisy	Senior 3 years	14-5-49	120	2	645	6·09	39·30	Grass Vale Golden Lad (19599)

Shepstone Signature	Senior 2 years	26–10–49	30	19	570	4·81	27·42	Shepstone Royal Reserve (20155)
Shepstone Lily Christabel 10th	Junior 2 years	3–12–48	273	18·5	4,090	5·10	208·78	Shepstone Royal Reserve (20155)
Shepstone Double Stella	Junior 2 years	23–1–49	273	6	2,598	5·10	132·52	Shepstone Double Reserve (21246)
Shepstone Belle Signita	Junior 2 years	5–1–49	273	12	2,526	4·74	119·69	Shepstone Double Reserve (21246)
Radford Park Sweet Pea	Junior 2 years	11–6–49	180	14	2,580	4·64	119·64	Grass Vale Havelock (1326)
Radford Park Snowdrop	Junior 2 years	19–6–49	150	10	2,460	4·64	114·06	Grass Vale Golden Lad (19599)
Radford Park Boronia 2nd	Junior 2 years	10–8–49	120	10	1,260	4·45	56·07	Grass Vale Havelock (1326)

Number of Cows in Average, 6. Average Milk, 2,558 lb. Average Test, 4·85 per cent. Average Butterfat, 124·78 lb.

AUSTRALIAN ILLAWARRA SHORTHORN.

J. H. BENSTED and CO.

Valliere Dairymaid	Mature	1–5–49	273	27·5	12,727	4·00	510·26	Valliere Skipton (7,595)
Tirano Madame	Mature	5–6–49	240	8·5	9,945	4·04	401·76	Chittering Prince (3,800)
Tirano Lorna	Mature	6–6–49	210	19·5	7,890	3·78	298·41	Chittering Prince (3,800)
Capel Daphne's Pet 2nd	Senior 3 yrs.	24–4–49	240	22·5	9,420	3·32	313·20	Capel Star King (4,672)
Tirano Katoomba 3rd	Junior 3 yrs.	2–5–49	273	6·5	5,839	4·03	325·34	Wooroloo Clansman (8,874)
Tirano Ivy 2nd	Senior 2 yrs.	3–5–49	273	21·5	9,034	4·33	391·32	Wooroloo Red Leo 2nd (7,660)
Tirano Melba 2nd	Senior 2 yrs.	19–12–48	273	28·5	8,245	4·00	330·43	Wooroloo Red Leo 2nd (7,660)
Tirano Madame 2nd	Senior 2 yrs.	2–2–49	273	28	7,959	3·92	312·32	Wooroloo Red Leo 2nd (7,660)
Tirano Emma 2nd	Senior 2 yrs.	28–2–49	273	26·5	8,014	3·77	302·44	Wooroloo Red Leo 2nd (7,660)
Southlyn Winnefra	Senior 2 yrs.	6–5–49	210	8·5	5,835	4·01	234·00	Capel Rose's Star (7,902)
Tirano Gladsome 2nd	Senior 2 yrs.	11–1–49	240	10	5,955	3·84	228·72	Wooroloo Red Leo 2nd (7,660)
Southlyn Pearl	Junior 2 yrs.	23–11–48	273	30·5	9,136	4·63	423·26	Summerlea Masterly (9,914)
Tirano Roma's Pride 2nd	Junior 2 yrs.	8–1–49	273	33	8,754	3·47	303·64	Wooroloo Red Leo 2nd (7,660)
Southlyn Rose	Junior 2 yrs.	1–6–49	240	23	7,590	3·98	302·07	Summerlea Masterly (9,914)

Number of Cows in Average, 14. Average Milk, 8,310 lb. Average Test, 3·94 per cent. Average Butterfat, 327·65 lb.

M. H. MONTGOMERY.

Tipperary Lovely 4th	Mature	21–7–49	273	24	11,112	4·40	488·94	Blackland's Monarch's Commander (1,877)
Cloverbrook Camelia	Mature	23–6–49	273	32	11,196	3·77	421·61	Tipperary Chieftain (7,567)
Tirano Topsy	Mature	20–10–48	273	21	8,448	4·17	352·06	Inverell Golden Pride (4,079)
Kiama Primrose 6th	Mature	20–10–48	273	14	7,312	4·66	342·30	Liberton Patriot 6th (4,134)
Summerlea Swallow 18th	Mature	17–5–49	150	23	4,245	4·21	178·73	Summerlea Togo's Triumph (6,243)
Milbrook June 2nd	Senior 4 yrs.	30–3–49	240	20	7,830	4·11	321·60	Plenarbor Barney (7,324)
Montaro Princess	Junior 4 yrs.	11–12–48	273	40	12,465	4·09	510·24	Glanavon Tudor (8,123)
Tipperary Beauty 21st	Junior 4 yrs.	14–3–49	273	11	8,583	4·52	388·55	Liberton Venturer 2nd (7,132)
Riverglen Connie	Senior 3 yrs.	23–1–49	273	27	8,506	4·02	341·81	Riverglen Admiral 3rd (7,353)
Montaro Pansy	Senior 3 yrs.	21–1–49	273	26	7,758	4·19	325·33	Glanavon Tudor (8,123)
Kiama Honeycomb 15th	Senior 3 yrs.	19–11–48	273	15	7,425	4·07	302·58	Liberton Patriot 6th (4,134)
Tipperary Dove 33rd	Senior 3 yrs.	9–10–48	273	16	7,533	4·00	301·77	Liberton Venturer 2nd (7,132)
Riverglen Vision 2nd	Senior 3 yrs.	17–8–49	210	13	5,910	3·98	232·59	Riverglen Limelight (3,479)
Montaro Bess	Junior 3 yrs.	14–9–49	180	15	4,950	3·87	191·85	Glanavon Tudor (8,123)
Montaro Beauty 2nd	Senior 2 yrs.	23–4–49	240	15	5,430	4·28	232·77	Riverglen Marksman (8,604)
Montaro Beauty 3rd	Junior 2 yrs.	24–3–49	273	24	8,142	4·47	363·77	Riverglen Marksman (8,604)
Montaro Olive	Junior 2 yrs.	19–1–49	273	15	6,990	4·33	302·99	Riverglen Marksman (8,604)
Montaro Bess 2nd	Junior 2 yrs.	19–1–49	273	19	6,057	4·51	273·23	Kiama Boulder Boy (9,517)
Montaro Kitty 2nd	Junior 2 yrs.	20–1–49	273	14	5,487	4·70	258·32	Riverglen Marksman (8,604)
Montaro Bess	Junior 2 yrs.	9–10–48	273	9	6,042	4·18	252·37	Glanavon Tudor (8,123)

Number of Cows in Average, 20. Average Milk, 7,572 lb. Average Test, 4·21 per cent. Average Butterfat, 319·17 lb.

PURE BRED HERD TESTING—continued.

COWS WHICH COMPLETED TEST DURING THE TWELVE MONTHS ENDED 30TH JUNE, 1950—*continued.*

AUSTRALIAN ILLAWARRA SHORTHORN.

Name of Cow.	Age Class.	Date of Entry to Test.	No. of Days in Test.	Weight of Milk on Last Day of Test. lb.	Weight of Milk for Period. lb.	Average Test %	Weight of Butterfat for Period. lb.	Sire.
WOOROLOO SANITORIUM FARM.								
Wooroloo Gail	Mature	8- 8-49	273	31	10,653	4·08	435·09	Wooroloo Red Baron (6,412)
Wooroloo Model 2nd	Mature	29- 9-49	273	12	7,626	4·04	308·33	Berry Rufus 2nd (6,570)
Claremont Clarie 4th	Mature	20-8-49	210	20	6,810	3·85	262·20	Summerlea Churchill (6,238)
Wooroloo Delys	Mature	17-6 49	210	7	4,950	4·46	220·86	Wooroloo Top Gallant (7,661)
Wooroloo Ena	Mature	13-8-49	90	27	3,360	4·04	135·99	Berry Rufus 2nd (6,570)
Wooroloo Bertha	Mature	11 10-49	90	12	2,820	4·14	116·85	Wooroloo Red Baron (6,412)
Wooroloo Lady May 6th	Mature	2-1-50	60	26	1,770	4·05	71·67	Wooroloo Red Baron (6,412)
Claremont Poppy 35th	Mature	4-1-50	60	10	1,410	4·17	58·80	Glanavon Dunster (6,867)
Wooroloo Greta	Mature	19-8-49	30	41	1,230	4·50	55·44	Berry Rufus 2nd (6,570)
Claremont Treasure 25th	Mature	13-8-49	30	39	1,170	4·11	48·06	Westby Monarch (5,404)
Wooroloo Trinket	Senior 4 yrs.	26-10 48	273	23	8,829	4·28	377·54	Wooroloo Red Baron (6,412)
Wooroloo Wynette 3rd	Senior 4 yrs.	12-4-49	273	9	7,197	4·44	319·53	Glanavon Fusilier (8,106)
Wooroloo Shirley 2nd	Senior 4 yrs.	21-7-49	240	7	6,750	4·26	287·28	Wooroloo Red Baron (6,412)
Claremont Poppy 35th	Senior 4 yrs.	15-12-48	273	10	5,640	4·09	230·60	Glanavon Dunster (6,867)
Wooroloo Violet	Junior 4 yrs.	6-8-49	273	27	10,611	4·11	436·70	Wooroloo Red Baron (6,412)
Wooroloo Golden Dawn 2nd	Junior 4 yrs.	1- 9-49	273	10	7,470	4·30	321·29	Wooroloo Red Baron (6,412)
Wooroloo Claret	Junior 4 yrs.	29-6-49	240	9	6,930	4·14	287·31	Berry Rufus 2nd (6,570)
Wooroloo Lulu	Junior 4 yrs.	30-3-49	273	14	6,252	4·48	280·56	Wooroloo Red Baron (6,412)
Claremont Poppy 43rd	Junior 4 yrs.	30-8-49	210	7	4,380	4·03	176·58	Glanavon Dunster (6,867)
Wooroloo Iris	Junior 4 yrs.	19-10 49	150	9	3,210	4·58	147·15	Glanavon Fusilier (8,106)
Wooroloo Sapphire 2nd	Senior 3 yrs.	30- 8-49	210	21	8,100	4·04	327·54	Glanavon Fusilier (8,106)
Wooroloo Petunia 2nd	Senior 3 yrs.	31- 9-49	273	12	7,526	4·20	316·46	Wooroloo Morning Star (8882,)
Wooroloo Red Dawn	Senior 3 yrs.	1 4-49	240	10	6,250	4·25	271·98	Wooroloo Red Baron (6,412)
Wooroloo Flirt	Senior 3 yrs.	28-7-49	240	8	4,770	5·08	242·40	Glanavon Fusilier (8,106)
Wooroloo Thistle	Senior 3 yrs.	26-10- 49	210	6	5,250	4·44	233·13	Glanavon Fusilier (8,106)
Wooroloo Patsy 4th	Junior 3 yrs.	30 8-49	273	13	9,309	4·28	398·32	Glanavon Fusilier (8,106)
Wooroloo Waratah	Junior 3 yrs.	14 3-49	273	14	6,522	4·67	304·76	Glanavon Fusilier (8,106)
Wooroloo Heather Bell 4th	Junior 3 yrs.	16 11 48	273	15	6,240	4·58	285·69	Wooroloo Red Baron (6,412)
Wooroloo Petal	Junior 3 yrs.	26- 8-49	210	10	5,010	4·28	214·62	Glanavon Fusilier (8,106)
Claremont Mavis 12th	Junior 3 yrs.	28 4-49	273	15	4,800	4·19	201·22	Westby Masterpiece (5,403)
Wooroloo Gleam	Junior 3 yrs.	20-11-48	273	9	4,677	4·27	199·68	Glanavon Fusilier (8,106)
Claremont Lily 13th	Junior 3 yrs.	14-4-49	240	8	3,840	4·21	161·55	Westby Monarch (5,404)
Wooroloo Red Glow	Junior 3 yrs.	24 3-49	273	9	3,600	4·47	161·07	Glanavon Fusilier (8,106)
Claremont Maggie Morrison 75th	Junior 3 yrs.	14-4-49	120	8	1,905	4·32	82·32	Glanavon Dunster (6,867)
Wooroloo Mannequin	Junior 3 yrs.	5-10-49	30	32	960	4·29	41·22	Wooroloo Morning Star (8,882)
Wooroloo Nancy	Senior 2 yrs.	10-6-49	273	22	7,986	4·25	339·46	Glanavon Fusilier (8,106)
Wooroloo Petunia 2nd	Senior 2 yrs.	28-10-48	273	26	7,818	4·19	327·45	Wooroloo Morning Star (8,882)
Wooroloo Thistle	Senior 2 yrs.	25 10-48	273	14	7,212	4·36	314·22	Glanavon Fusilier (8,106)
Wooroloo Minnie	Senior 2 yrs.	14-6- 49	273	21	7,353	4·17	306·29	Wooroloo Baron's Reward (8,870)
Wooroloo Bonnie Mary	Senior 2 yrs.	27- 1 49	273	16	6,288	4·47	281·55	Glanavon Fusilier (8,106)

Wooroloo Leonora	Senior 2 yrs.	17–12–49	90	16	1,800	4·02	72·42	Wooroloo Baron's Reward (8,870)
Wooroloo Millie	Junior 2 yrs.	7–11–48	273	29	8,007	4·15	332·29	Glanavon Fusilier (8,106)
Wooroloo Red Dawn 2nd	Junior 2 yrs.	21–11–48	273	21	7,683	4·13	317·52	Wooroloo Red Baron (6,412)
Wooroloo Glamour	Junior 2 yrs.	1–10–49	273	14	7,092	4·23	300·03	Parkview Elect (9,774)
Wooroloo Leonora	Junior 2 yrs.	12–12–48	273	21	6,453	4·41	284·47	Wooroloo Baron's Reward (8,870)
Wooroloo Patsy 5th	Junior 2 yrs.	29–9–49	273	15	6,525	4·32	281·68	Parkview Elect (9,774)
Wooroloo Audrey	Junior 2 yrs.	31–9–49	273	17	6,111	4·57	279·62	Parkview Elect (9,774)
Wooroloo Garbo 2nd	Junior 2 yrs.	26–9–49	273	17	5,901	4·66	275·11	Parkview Elect (9,774)
Wooroloo Twinkle	Junior 2 yrs.	13–11–48	273	16	6,248	4·38	273·85	Wooroloo Morning Star (8,882)
Wooroloo Garbo	Junior 2 yrs.	24–11–48	273	11	5,313	4·39	233·40	Glanavon Fusilier (8,106)
Wooroloo Goldilocks	Junior 2 yrs.	18 11–48	240	6	4,560	4·45	203·16	Wooroloo Baron's Reward (8,870)

Number of Cows in Average, 42. Average Milk, 6,518 lb. Average Test, 4·29 per cent. Average Butterfat, 279·99 lb.

K. I. PROWSE.

Wattlehill Red Rose	Mature	25–9 49	273	19	11,367	3·59	408·99	Wallatin Ninetysix (7607)
Wattlehill Roan Queen	Mature	1–10–49	273	12·5	9,442	3·67	346·20	Wallatin Ninetysix (7607)
Plenarbor Flora	Mature	14 8–49	240	14·5	9,960	3·32	331·14	Tipperary Empress Monarch (4436)
Wattlehill Princess	Mature	17–7–49	273	6·5	9,919	3·21	318·98	Wallatin Ninetysix (7607)
Campania Lu-Lu	Mature	21–5–49	273	6·5	9,294	3·40	315·98	Longridge Triumph (5932)
Capel Gibson Girl	Mature	31–5–49	210	12·5	5,950	3·70	220·35	Valliere Commodore (6360)
Valliere Favourite	Mature	24–11 48	210	11	4,665	4·25	198·15	Wooroloo Noble 4th (6411)
Campania Fussy	Mature	19 7–49	180	12·5	4,950	3·59	177·72	Longridge Triumph (5932)
Wattlehill Roan Queen	Senior 4 years	23–11–48	273	26·5	10,084	4·07	410·31	Wallatin Ninetysix (7607)
Wattlehill Doris	Senior 4 years	25–10–49	210	12	5,010	3·61	180·81	Capel Cinderella King 2nd (7892)
Wattlehill Grace	Junior 4 years	14 6–49	273	6·5	6,619	3·64	240·86	Capel Cinderella King 2nd (7892)
Wattlehill Patchy	Senior 3 years	15 5–49	273	8	8,469	3·63	307·42	Wallatin Ninetysix (7607)
Wattlehill Princess Maid	Senior 2 years	2–3–49	273	35	9,825	3·54	34·27	Capel Cinderella King 2nd (7892)
Wattlehill Lovely	Junior 2 years	29 9–49	273	9·5	6,512	3·68	293·56	Capel Cinderella King 2nd (7892)
Hades Teena's Pride	Junior 2 years	14 8–49	273	11	6,018	4·23	254·63	Yanget Marquise (2983)
Wattlehill Red Girl	Junior 2 years	2 11–49	273	21	6,663	3·68	245·12	Capel Cinderella King 2nd (7892)
Wattlehill Red Correll	Junior 2 years	7–11–48	273	13·5	6,205	3·59	223·31	Capel Cinderella King 2nd (7892)
Wattlehill Spottie	Junior 2 years	6–10–49	273	14	6,222	3·56	221·87	Capel Cinderella King 2nd (7892)
Wattlehill Rosemary	Junior 2 years	2–10–49	240	10	5,075	4·15	210·60	Capel Cinderella King 2nd (7892)
Wattlehill Star Girl	Junior 2 years	18 8–49	210	9·5	4,710	4·08	192·46	Wallatin Ninetysix (7607)

Number of Cows in Average, 20. Average Milk, 7,346 lb. Average Test, 3·70 per cent. Average Butterfat, 272·33 lb.

W. G. BURGES.

Greyleigh Precious Gem 3rd	Mature	29–8–49	240	10	6,840	4·25	290·97	Greyleigh Wooton (4016)
Tipperary Lady May 6th	Mature	4–4 49	210	13	5,790	4·20	243·33	Tipperary Ace (6336)
Tipperary Dove 25th	Mature	16–7–49	90	16	2,820	4·01	113·16	Tipperary Ace (6336)
Tipperary Beauty 22nd	Mature	5–3–50	90	23	2,430	4·23	102·90	Liberton Venturer 2nd (7132)
Tipperary Beauty 23rd	Junior 4 years	1–4–49	273	10	8,685	4·31	374·50	Liberton Venturer 2nd (7132)
Tipperary Dove 34th	Junior 4 years	27–3–50	60	26	1,620	4·48	72·60	Glanavon Povey (8114)
Tipperary Lovely 11th	Senior 3 years	19–4–49	180	17·5	5,045	4·26	214·86	Tipperary Ace (6336)
Tipperary Tulip	Senior 3 years	27–10–49	210	10	4,020	4·56	183·30	Tipperary Performer (7572)
Tipperary Tulip	Junior 3 years	13–11–48	273	19	7,857	4·54	357·21	Tipperary Performer (7572)
Tipperary Beauty 25th	Junior 3 years	5–6—9	273	7	5,541	4·52	250·26	Tipperary Ace (6336)
Tipperary Beauty 26th	Senior 2 years	30–3–50	60	19	1,140	4·74	54·06	Alfa Vale Modus (8926)
Tipperary Lovely's Model	Junior 2 years	27–4–49	273	18	5,874	4·87	286·43	Alfa Vale Modus (8926)
Tipperary Lucky	Junior 2 years	12–6–49	273	11	5,673	4·22	239·36	Glanavon Trevor
Tipperary Lucey	Junior 2 years	6–1–50	150	14	3,000	4·55	137·62	Alfa Vale Modus (8926)
Tipperary Jean	Junior 2 years	6–3–50	90	28	2,490	4·25	105·96	Alfa Vale Modus (8926)
Tipperary Blossom	Junior 2 years	15–1–50	90	17	1,650	4·50	74·34	Alfa Vale Modus (8926)

Number of Cows in Average, 10. Average Milk, 5,833 lb. Average Test, 4·41 per cent. Average Butterfat, 257·68 lb.

PURE BRED HERD TESTING—continued.

COWS WHICH COMPLETED TEST DURING THE TWELVE MONTHS ENDED 30TH JUNE, 1950—*continued.*

AUSTRALIAN ILLAWARRA SHORTHORNS.

Name of Cow.	Age Class.	Date of Entry to Test.	No. of Days in Test.	Weight of Milk on Last Day of Test.	Weight of Milk for Period.	Average Test.	Weight of Butterfat for Period.	Sire.
				lb.	lb.	%	lb.	
D. H. BELL.								
Carbunup Flirt	Mature	20-2-49	273	40·5	9,736	4·44	432·43	Newstead Royal Sun (7252)
Newstead Emerald 61st	Mature	22-2-49	273	33·5	9,805	3·79	372·53	Raleigh Venturer (7339)
Carbunup Grace	Mature	7-5-49	240	18	8,940	4·05	361·89	Glanavon Maestro (4833)
Carbunup Floxy	Mature	21-6-49	210	15·5	9,360	3·53	330·06	Newstead Royal Sun (7252)
Carbunup Beatrice	Mature	14 6-49	210	23	8,355	3·85	322·02	Glanavon Maestro (4833)
Carbunup Freda	Mature	5-2-49	273	31	8,823	3·55	313·39	Newstead Royal Sun (7252)
Carbunup Floss	Mature	23 2-49	273	37·5	7,897	3·84	303·03	Newstead Royal Sun (7252)
Carbunup Florence	Mature	14-2-49	273	14	7,872	3·80	299·55	Newstead Royal Sun (7252)
Carbunup Baroness	Mature	21-5-49	210	17·5	8,355	3·55	296·55	Glanavon Maestro (4833)
Carbunup Fussy	Mature	9-2-49	273	24·5	7,813	3·75	292·74	Glanavon Maestro (4833)
Glanavon Aster	Mature	4-3-49	273	19·5	6,748	4·33	292·51	Glanavon Nimrod (437)
Newstead Rapture 28th	Mature	26 5 49	240	10·5	7,830	3·72	291·54	Newstead Dictator (6025)
Carbunup Fuchsia	Mature	24-6-49	210	14·5	7,785	3·72	289·61	Newstead Royal Sun (7252)
Carbunup Ivy	Mature	19 4-49	273	13·5	6,955	4·15	288·77	Newstead Royal Sun (7252)
Carbunup Fay	Mature	28-6-49	210	13·5	7,940	3·60	286·35	Newstead Royal Sun (7252)
Carbunup Gold	Mature	18-5-49	273	12	7,401	3·70	274·20	Newstead Royal Sun (7252)
Carbunup Crocus	Mature	16-3-49	273	9·5	7,428	3·69	273·84	Glanavon Maestro (4833)
Carbunup Fragrance	Mature	10-2-49	273	29	6,462	4·14	267·52	Newstead Royal Sun (7252)
Carbunup Dahlia	Mature	5-2 49	273	12	6,051	4·17	252·59	Glanavon Maestro (4833)
Carbunup Constance	Mature	30-1-49	273	19	6,237	3·49	218·23	Glanavon Maestro (4833)
Carbunup Dora	Mature	26-2-49	180	20·5	5,115	3·79	193·97	Glanavon Maestro (4833)
Carbunup Gem	Senior 4 years	5-5-49	273	7	7,581	4·02	305·31	Newstead Royal Sun (7252)
Carbunup Gentle	Senior 4 years	13-2 49	273	26·5	7,279	3·44	250·93	Newstead Royal Sun (7252)
Glanavon Melba 7th	Senior 4 years	26-2 49	180	22	4,650	3·96	184·20	Newstead Triumph (3420)
Newstead Lovely 29th	Senior 4 years	21 5-49	210	7·5	4,815	3·71	178·56	Newstead Radiant (8477)
Carbunup Honey	Junior 4 years	24-3-49	273	11	6,918	4·06	280·62	Newstead Royal Sun (7252)
Carbunup Helen	Senior 3 years	10-2-49	273	19	6,687	3·61	241·64	Newstead Royal Sun (7252)
Carbunup Heiress	Senior 3 years	11-2-49	273	11	6,143	3·67	225·27	Newstead Royal Sun (7252)
Carbunup Harp	Senior 3 years	20 2-49	273	10·5	5,551	3·92	217·57	Glanavon Maestro (4833)
Carbunup Hazel	Senior 3 years	11-1-49	273	21	5,433	3·97	215·52	Glanavon Maestro (4833)
Newstead Empress 160th	Senior 3 years	10-11-48	273	7	4,206	4·44	186·84	Newstead Dictator (6075)
Carbunup Handsome	Senior 3 years	5 2-49	273	11·5	4,999	3·57	178·46	Newstead Royal Sun (7252)
Carbunup Ida	Junior 3 years	23-5-49	210	21·5	7,005	4·23	295·98	Glanavon Maestro (4833)
Carbunup Irene	Junior 3 years	9-3-49	180	9	3,285	3·90	128·25	Newstead Royal Sun (7252)
Carbunup Iris	Junior 3 years	24-3-49	150	20·5	3,135	4·02	126·15	Newstead Royal Sun (7252)
Carbunup Ideal	Senior 2 years	25-2-49	273	18·5	5,155	3·98	205·25	Newstead Royal Sun (7252)
Carbunup Innocence	Senior 2 years	25-3-49	240	20·5	5,175	3·42	176·94	Glanavon Maestro (4833)
Carbunup Ixia	Senior 2 years	7-2-49	150	21	2,610	3·62	94·41	Glanavon Maestro (4833)
Carbunup Isabella	Senior 2 years	10-4-49	120	16·5	2,010	3·40	68·46	Newstead Royal Sun (7252)

Carbunup Jenny	Junior 2 years	16–5–49	273	4	8,562	3·97	340·25	Glanavon Maestro (4833)
Carbunup Jealousy	Junior 2 years	6–6–49	240	10	6,045	3·98	240·96	Newstead Royal Sun (7252)
Carbunup Jacqueline	Junior 2 years	7–2–49	273	19	5,562	4·02	223·85	Parkview Sapper (9782)
Newstead Emerald's Ivory	Junior 2 years	14–2–49	273	21·5	5,734	3·86	221·39	Haroldae Ruler (9452)
Carbunup Joyce	Junior 2 years	7–7–49	210	8	5,325	3·94	210·03	Newstead Royal Sun (7252)
Carbunup Janetta	Junior 2 years	20–2–49	240	18·5	4,530	3·79	171·84	Glanavon Maestro (4833)
Carbunup Jasmine	Junior 2 years	25–12–48	240	12	4,005	3·71	148·53	Newstead Royal Sun (7252)

Number of Cows in Average, 45. Average Milk, 6,517 lb. Average Test, 3·89 per cent. Average Butterfat, 251·20 lb.

NARROGIN SCHOOL OF AGRICULTURE.

Narrogin Daisybell	Mature	2–3–49	273	8	7,974	4·60	367·31	Westby Masterpiece (5403)
Narrogin Colleen	Mature	28–3–49	273	20	6,960	4·49	312·77	Westby Masterpiece (5403)
Narrogin Stella	Mature	13–4–49	273	9	6,957	4·36	303·46	Westby Masterpiece (5403)
Narrogin Mary	Junior 4 years	10–4–49	273	19	7,377	4·26	314·36	Tipperary Amy's Mascot (6338)
Narrogin Dixie	Junior 4 years	11–3–49	273	8·5	5,890	4·51	265·70	Tipperary Amy's Mascot (6338)
Narrogin Collette	Senior 3 years	23–10–48	273	26	9,708	4·44	430·93	Tipperary Amy's Mascot (6338)
Narrogin Astrid	Senior 3 years	27–2–49	180	10	3,330	4·13	137·46	Wooroloo Gay Gordon (8878)
Narrogin Mayflower	Junior 3 years	23–5–49	210	9	5,040	4·52	228·06	Wooroloo Gay Gordon (8878)
Narrogin Chrissie	Senior 2 years	30–3–49	273	6	5,298	4·45	236·01	Wooroloo Gay Gordon (8878)
Narrogin Sybil	Senior 2 years	26–2–49	273	9	5,127	4·48	229·71	Wooroloo Gay Gordon (8878)
Narrogin Lady	Senior 2 years	17–4–49	240	6	4,275	4·32	184·83	Wooroloo Gay Gordon (8878)
Narrogin Coquette	Senior 2 years	21–2–49	210	13	3,480	4·22	147·12	Wooroloo Gay Gordon (8878)
Narrogin Cora	Senior 2 years	18–2–49	180	7	2,550	4·77	121·74	Wooroloo Gay Gordon (8878)
Narrogin Mignonette	Senior 2 years	24–2–49	210	8	2,550	4·64	118·44	Wooroloo Gay Gordon (8878)
Narrogin Gay Doll	Junior 2 years	4–7–49	273	14	6,882	3·42	325·53	Wooroloo Gay Gordon (8878)
Narrogin Laurel	Junior 2 years	26–8–49	273	18	6,789	4·66	316·26	Wooroloo Gay Gordon (8878)
Narrogin Deborah	Junior 2 years	27–7–49	273	17	6,966	4·43	308·67	Wooroloo Gay Gordon (8878)
Narrogin Lillith	Junior 2 years	7–8–49	273	16	7,168	4·15	297·79	Wooroloo Gay Gordon (8878)
Narrogin Clarissa	Junior 2 years	27–8–49	273	9	6,567	4·35	285·64	Wooroloo Gay Gordon (8878)
Narrogin Dark Charm	Junior 2 years	15–7–49	273	9	4,677	4·60	215·26	Wooroloo Gay Gordon (8878)
Narrogin Marina	Junior 2 years	25–6–49	180	16	3,810	4·28	163·08	Wooroloo Gay Gordon (8878)
Narrogin Jewel	Junior 2 years	5–7–49	180	9	3,330	4·69	156·33	Wooroloo Gay Gordon (8878)
Narrogin Dorothy	Junior 2 years	4–7–49	180	11	2,340	4·88	114·24	Wooroloo Gay Gordon (8878)

Number of Cows in Average, 23. Average Milk, 5,437 lb. Average Butterfat, 242·63 lb. Average Test, 4·46 per cent.

G. W. MARSTON.

Lenmoors Red Queen	Mature	14–6–49	273	7	14,196	3·82	542·07	Ferndale Radiant (5,729)
Lenmoors Queen 2nd	Mature	2–9–49	210	7	9,375	3·65	342·29	Lenmoors Gem (4,977)
Lenmoors Queen 3rd	Mature	28–8–49	240	4	8,280	3·85	318·96	Ferndale Memento (3,194)
Lenmoors Bluebell	Mature	25–6–49	240	5·5	7,680	4·09	313·98	Ferndale Memento (3,194)
Lenmoors Peggy 2nd	Mature	15–7–49	273	3·5	7,495	3·78	283·77	Ferndale Radiant (5,729)
Lenmoors Gentle	Mature	5–7–49	240	6	7,850	3·59	282·42	Ferndale Memento (3,194)
Lenmoors Biddy	Mature	25–9–49	210	6	6,540	4·19	274·26	Wooroloo Union Jack (7,662)
Lenmoors Della 5th	Mature	21–9–49	210	2	6,030	4·53	273·51	Ferndale Radiant (5,725)
Brackenhurst Queen	Mature	13–9–49	210	2	5,460	3·53	192·75	Thornleigh Champagne (930)
Lenmoors Queen 5th	Senior 4 yrs.	29–5–49	273	11	7,938	3·44	273·24	Ferndale Radiant (5,729)
Alne Bank Fairy 36th	Senior 4 yrs.	11–7–49	240	4	6,225	4·27	266·07	Park View Factor (5,107)
Lenmoors Maggie 2nd	Senior 4 yrs.	20–7–49	240	2	4,795	3·99	191·22	Wooroloo Union Jack (7,662)
Lenmoors Queen 6th	Junior 3 yrs.	7–4–49	273	5	6,435	3·86	248·47	Wooroloo Union Jack (7,662)
Lenmoors Joan 4th	Junior 3 yrs.	15–6–49	240	5	4,635	4·23	195·89	Wooroloo Union Jack (7,662)

PURE BRED HERD TESTING—continued.

COWS WHICH COMPLETED TEST DURING THE TWELVE MONTHS ENDED 30TH JUNE, 1950—*continued.*

AUSTRALIAN ILLAWARRA SHORTHORNS.

Name of Cow.	Age Class	Date of Entry to Test.	No. of Days in Test.	Weight of Milk on Last Day of Test. lb.	Weight of Milk for Period. lb.	Average Test. %	Weight of Butterfat for Period. lb.	Sire.
G. W. MARSTON—continued.								
Alne Bank Audrey 15th	Junior 3 yrs.	7 5-49	210	7	3,720	4·89	182·22	Alne Bank Glen (6,449)
Lenmoors Queen 7th	Junior 3 yrs.	7-9-49	120	16·5	3,345	3·72	124·50	Wooroloo Union Jack (7,662)
Lenmoors Milkmaid 4th	Senior 2 yrs.	17-10-49	180	24	4,385	3·78	166·08	Wooroloo Union Jack (7,662)
Lenmoors Nancy 4th	Junior 3 yrs.	30-5-49	180	13·5	3,810	4·23	161·31	Wooroloo Union Jack (7,662)
Lenmoors Jean 3rd	Junior 2 yrs.	9-4-49	273	8	5,514	4·37	240·75	Wooroloo Union Jack (7,662)
Lenmoors Queen 7th	Junior 2 yrs.	7-10-48	240	2·5	4,350	4·30	187·05	Wooroloo Union Jack (7,662)
Lenmoors Jean 5th	Junior 2 yrs.	17-7-49	273	3	4,669	3·98	185·96	Wooroloo Union Jack (7,662)
Lenmoors Joan 5th	Junior 2 yrs.	17-7-49	273	3·5	4,540	4·01	182·24	Wooroloo Union Jack (7,662)
Lenmoors Bluebell 3rd	Junior 2 yrs.	22-7-49	273	2	4,491	3·83	172·29	Wooroloo Union Jack (7,662)
Lenmoors Milkmaid 4th	Junior 2 yrs.	6-10-48	240	5	4,395	3·61	158·78	Wooroloo Union Jack (7,662)
Lenmoors Biddy 3rd	Junior 2 yrs.	11-10-48	240	2·5	2,835	3·91	110·85	Wooroloo Union Jack (7,662)
Number of Cows in Test, 24.	Average Milk, 6,068 lb.			Average Test, 3·94 per cent.			Average Butterfat, 239·43 lb.	
CLAREMONT HOSPITAL FOR THE INSANE.								
Claremont Maggie Morrison 49th	Mature	12-4-49	273	26	9,258	3·95	365·36	Westby Monarch (5404)
Claremont Treasure 30th	Mature	14-11-48	273	20·5	8,116	4·04	327·58	Westby Monarch (5404)
Claremont Whitby Maid 51st	Mature	26 8-49	273	25	8,910	3·58	318·84	Summerlea Churchill (6236)
Claremont Biddy 60th	Mature	28 3-49	273	13	8,994	3·50	315·25	Westby Monarch (5404)
Claremont Biddy 65th	Mature	8-9-49	273	35	9,300	3·37	313·54	Summerlea Churchill (6236)
Claremont Maggie Morrison 48th	Mature	13-12-48	273	33·5	9,880	3·09	305·41	Summerlea Churchill (6236)
Claremont Maggie Morrison 61st	Mature	10-9-49	273	25	8,535	3·49	297·88	Westby Monarch (5404)
Claremont Cleggett 28th	Mature	7-9-49	273	28·5	8,065	3·68	297·06	Westby Masterpiece (5403)
Claremont Maggie Morrison 41st	Mature	10 3-49	273	18·5	8,425	3·50	294·74	Westby Monarch (5404)
Claremont Clara 24th	Mature	24-9-49	273	25	7,950	3·66	291·16	Claremont Vincent (6715)
Claremont Beauty 22nd	Mature	19-8-49	273	24	8,627	3·33	287·32	Westby Monarch (5404)
Claremont Cleggett 27th	Mature	21-4-49	273	23	8,604	3·28	282·55	Westby Masterpiece (5403)
Claremont Cleggett 24th	Mature	30-11-48	273	21	7,293	3·84	279·83	Westby Masterpiece (5403)
Claremont Maggie Morrison 55th	Mature	2-4 49	273	27	9,051	3·07	277·89	Westby Masterpiece (5403)
Claremont Whitby Maid 48th	Mature	23-1-49	273	26·5	9,044	3·06	276·80	Westby Monarch (5404)
Claremont Belle 33rd	Mature	10 8-49	273	11	7,848	3·47	272·92	Summerlea Churchill (6236)
Claremont Mabel 26th	Mature	8-6-49	273	29	8,982	3·02	271·53	Summerlea Churchill (6236)
Claremont Mabel 18th	Mature	25-5-49	273	18	8,064	3·35	270·11	Wooroloo Jean 2nd's Guardian (4488)
Claremont Plum 9th	Mature	21 4-49	273	22	7,641	3·53	270·08	Westby Monarch (5404)
Claremont Cocky 27th	Mature	28-5-49	273	24	8,082	3·33	268·87	Westby Monarch (5404)
Claremont Poppy 27th	Mature	2-3-49	273	19	8,067	3·27	264·12	Summerlea Churchill (6236)
Claremont Cherry 38th	Mature	31-7-49	273	21·5	8,024	3·25	260·60	Westby Masterpiece (5403)
Claremont Whitby Maiden 2nd	Mature	31-7-49	273	11	7,503	3·35	251·15	Westby Monarch (5404)

Claremont Mabel 27th	Mature	13-3-49	273	21·5	7,909	3·18	251·12	Summerlea Churchill (6236)
Claremont Cleggett 25th	Mature	18-1-49	273	20	7,740	3·19	247·06	Westby Masterpiece (5403)
Claremont Lily 11th	Mature	2 7-49	273	20·5	7,381	3·26	240·77	Westby Monarch (5404)
Claremont Cherry 26th	Mature	16-5-49	273	21	7,263	3·28	238·37	Claremont Pompous (4690)
Claremont Treasure 26th	Mature	2-4-49	273	16·5	6,709	3·52	236·48	Wooroloo Triumph 4th (3627)
Claremont Cocky 21st	Mature	28-3-49	273	19·5	8,083	2·92	236·20	Wooroloo Triumph 4th (3627)
Claremont Maggie Morrison 52nd	Mature	16-3-49	273	20	6,765	3·25	220·00	Summerlea Churchill (6236)
Claremont Whitby Maid 54th	Mature	28-7-49	273	14	7·97	3·05	219·77	Westby Monarch (5404)
Claremont Clarie 2nd	Mature	24-3-49	273	21	7,353	2·99	219·68	Westby Monarch (5404)
Claremont Treasure 33rd	Mature	14-2-49	273	12	7·61	2·99	214·44	Summerlea Churchill (6236)
Claremont Poppy 34th	Mature	22-9-49	273	4·5	6,078	3·52	213·87	Summerlea Churchill (6238)
Claremont Blossom 31st	Mature	14-6-49	273	15	6,885	3·08	212·19	Westby Monarch (5404)
Claremont Poppy 26th	Mature	9-4-49	273	12·5	5,827	3·55	206·70	Westby Monarch (5404)
Claremont Treasure 18th	Mature	27-4-49	273	12·5	5,017	3·80	190·87	Wooroloo Jean 2nd Guardian (4488)
Claremont Biddy 43rd	Mature	1-4-49	273	13	5,709	3·29	187·82	Wooroloo Triumph 4th (3627)
Claremont Mabel 21st	Mature	28-3-49	273	17·5	5,917	3·16	186·93	Westby Monarch (5404)
Claremont Star 33rd	Mature	25-2-49	273	11	5,583	3·00	167·62	Summerlea Churchill (6236)
Claremont Beauty 26th	Mature	15-1-49	210	17·5	4,410	2·94	129·84	Westby Monarch (5404)
Claremont Treasure 43rd	Senior 4 years	16-11-48	273	17	8,046	3·70	297·95	Westby Monarch (5404)
Claremont Biddy 78th	Senior 4 years	31-1-49	273	24·5	8,398	3·39	285·07	Westby Monarch (5404)
Claremont Treasure 42nd	Senior 4 years	29-10-48	273	9	7,062	3·95	279·08	Westby Monarch (5404)
Claremont Whitby Maid 60th	Senior 4 years	29-4-49	273	21·5	8,449	3·25	274·91	Westby Monarch (5404)
Claremont Mabel 31st	Senior 4 years	16-12-48	240	30·5	7,290	3·72	271·32	Summerlea Churchill (6236)
Claremont Maggie Morrison 60th	Senior 4 years	20-12-48	273	22·5	7,307	3·61	263·91	Westby Monarch (5404)
Claremont Cherry 39th	Senior 4 years	7-8-49	273	12	6,936	3·79	263·31	Westby Monarch (5404)
Claremont Blossom 44th	Senior 4 years	26-7-49	273	21·5	8,164	3·22	262·68	Westby Monarch (5404)
Claremont Belle 39th	Senior 4 years	7-11-48	273	16·5	7,849	3·20	250·87	Westby Masterpiece (5403)
Claremont Cocky 35th	Senior 4 years	29-8-49	273	21	6,888	3·58	246·40	Westby Masterpiece (5403)
Claremont Whitby Maid 58th	Senior 4 years	18-11-48	273	15	7,680	3·18	244·03	Westby Masterpiece (5403)
Claremont Maggie Morrison 63rd	Senior 4 years	20-6-49	273	21	7,068	3·44	243·06	Westby Masterpiece (5403)
Claremont Maggie 20th	Senior 4 years	12-3-49	273	17	7,236	3·01	218·18	Westby Masterpiece (5403)
Claremont Biddy 75th	Senior 4 years	9-2-49	273	14	5,757	3·50	201·69	Westby Masterpiece (5403)
Claremont Belle 3rd	Senior 4 years	27-5-49	210	19·5	5,745	3·39	194·61	Westby Masterpiece (5403)
Claremont Pinafore 20th	Senior 4 years	27-3-49	273	15·5	5,776	3·32	191·75	Westby Masterpiece (5403)
Claremont Star 35th	Senior 4 years	18-6-49	273	9	4,182	3·33	139·53	Westby Masterpiece (5403)
Claremont Bess 2nd	Junior 4 years	6-5-49	273	23	7,584	3·63	275·38	Glanavon Dunster (6867)
Claremont Blossom 45th	Junior 4 years	1-5-49	273	24	7,422	3·61	267·62	Claremont Woodrow (7958)
Claremont Maggie Morrison 66th	Junior 4 years	22-3-49	273	21	7,323	3·55	259·74	Westby Monarch (5404)
Claremont Cocky 36th	Junior 4 years	2-7-49	273	22	8,046	3·16	254·38	Westby Masterpiece (5403)
Claremont Mabel 33rd	Junior 4 years	16-3-49	273	19·5	7,828	3·18	249·27	Glanavon Dunster (6867)
Claremont Cherry 41st	Junior 4 years	5-4-49	273	12	6,946	3·49	242·77	Westby Monarch (5404)
Claremont Biddy 81st	Junior 4 years	27-10-48	273	18	6,324	3·58	226·50	Westby Monarch (5404)
Claremont Maggie Morrison 67th	Junior 4 years	21-1-49	273	22·5	6,727	3·32	223·61	Westby Monarch (5404)
Claremont Maggie 23rd	Junior 4 years	25-3-49	273	21	5,958	3·53	210·30	Glanavon Dunster (6867)
Claremont Beauty 31st	Junior 4 years	9-4-49	273	16	5,730	3·11	178·35	Glanavon Dunster (6867)
Claremont Maggie Morrison 57th	Junior 4 years	23-2-49	120	26	3,870	3·34	129·15	Summerlea Churchill (6236)
Claremont Maggie Morrison 69th	Junior 4 years	1-5-49	60	34·5	1,935	3·76	72·87	Westby Masterpiece (5403)
Claremont Pinafore 21st	Senior 3 years	2-11-48	273	32·5	10,372	3·49	361·81	Westby Monarch (5404)
Claremont Whitby Maid 65th	Senior 3 years	2-10-49	273	32	8,526	3·59	306·49	Glanavon Dunster (6867)
Claremont Poppy 42nd	Senior 3 years	28-10-48	273	29·5	7,858	....	259·42	Westby Masterpiece (5403)
Claremont Biddy 83rd	Senior 3 years	17-11-48	273	18	7,944	3·25	257·87	Westby Monarch (5404)
Claremont Maggie Morrison 65th	Senior 3 years	24-11-48	273	19	7,032	3·50	246·78	Westby Masterpiece (5403)
Claremont Whitby Maid 64th	Senior 3 years	22-4-49	273	16·5	6,724	3·47	233·66	Westby Monarch (5404)
Claremont Whitby Maid 61st	Senior 3 years	2-12-48	27	20·5	7,021	3·25	228·04	Westby Masterpiece (5403)

PURE BRED HERD TESTING—continued.

COWS WHICH COMPLETED TEST DURING THE TWELVE MONTHS ENDED 30TH JUNE, 1950—*continued.*

AUSTRALIAN ILLAWARRA SHORTHORNS.

Name of Cow.	Age Class.	Date of Entry to Test.	No. of Days in Test.	Weight of Milk on Last Day of Test.	Weight of Milk for Period.	Average Test	Weight of Butterfat for Period.	Sire.
				lb.	lb.	%	lb.	
CLAREMONT HOSPITAL FOR THE INSANE—continued.								
Claremont Biddy 88th	Senior 3 years	30–6–49	273	17·5	6,847	3·28	224·95	Westby Masterpiece (5403)
Claremont Mabel 37th	Senior 3 years	14–9–49	273	17	6,756	3·19	215·70	Westby Masterpiece (5403)
Claremont Dover 15th	Senior 3 years	26–12–48	273	24	7,272	2·85	207·65	Westby Masterpiece (5403)
Claremont Belle 47th	Senior 3 years	10–9–49	273	23	6,369	3·13	199·46	Westby Masterpiece (5403)
Claremont Clarie 5th	Senior 3 years	26–11–48	273	20	6,015	3·10	186·71	Westby Masterpiece (5403)
Claremont Treasure 49th	Senior 3 years	12–3–49	60	...	1,785	3·54	63·21	Glanavon Dunster (6867)
Claremont Clara 28th	Junior 3 years	7–8–49	273	21·5	7,275	4·18	304·02	Westby Masterpiece (5403)
Claremont Poppy 44th	Junior 3 years	15–3–49	273	24	8,157	3·20	260·81	Capel Monarch (7898)
Claremont Whitby Maiden 5th	Junior 3 years	15–7–49	273	17·5	6,097	3·91	238·60	Glanavon Dunster (6867)
Claremont Cherry 45th	Junior 3 years	6–10–48	273	16	5,838	3·96	231·17	Glanavon Dunster (6867)
Claremont Poppy 46th	Junior 3 years	17–8–49	273	22	7,566	2·97	224·80	Claremont Admiration (7923)
Claremont Blossom 50th	Junior 3 years	24–12–48	273	17	7,146	3·12	222·86	Capel Monarch (7898)
Claremont Blossom 47th	Junior 3 years	6–11–48	273	18	6,534	3·39	221·44	Westby Monarch (5404)
Claremont Blossom 48th	Junior 3 years	9–11–48	273	21·5	7,174	3·00	215·52	Westby Monarch (5404)
Claremont Blossom 49th	Junior 3 years	2–12–48	273	21·5	6,274	3·40	213·87	Westby Masterpiece (5403)
Claremont Stella 14th	Junior 3 years	26–12–48	273	17·5	6,187	3·45	213·55	Claremont Wittons Choice (7057)
Claremont Star 38th	Junior 3 years	9–12–48	273	17·5	6,412	3·33	213·47	Westby Monarch (5404)
Claremont Biddy 89th	Junior 3 years	16–5–49	273	16	5,688	3·66	208·42	Glanavon Dunster (6867)
Claremont Maggie Morrison 78th	Junior 3 years	10–7–49	273	14·5	5,668	3·56	201·81	Westby Masterpiece (5403)
Claremont Biddy 86th	Junior 3 years	18–11–48	273	10·5	5,786	3·46	200·47	Glanavon Dunster (6867)
Claremont Cherry 46th	Junior 3 years	1–6–49	273	18	5,814	3·44	200·11	Capel Monarch (5404)
Claremont Blossom 51st	Junior 3 years	15–3–49	273	9	4,557	3·41	155·53	Westby Monarch (5404)
Claremont Flora 17th	Senior 2 years	13–12–48	273	17·5	5,707	3·26	186·13	Capel Monarch (7898)
Claremont Maggie Morrison 84th	Senior 2 years	5–7–49	273	17	5,556	3·26	180·95	Westby Monarch (5404)
Claremont Maggie 28th	Senior 2 years	25–8–49	90	24·5	2,610	3·39	88·65	Wooroloo Night Fighter (8884)
Claremont Whitby Maiden 8th	Junior 2 years	19–8–49	273	24	7,017	3·76	263·76	Wooroloo Night Fighter (8884)
Claremont Treasure 57th	Junior 2 years	28–7–49	273	22·5	7,372	3·54	261·22	Claremont Artist (7935)
Claremont Maggie Morrison 86th	Junior 2 years	20–5–49	273	18·5	6,805	3·80	258·75	Westby Monarch (5404)
Claremont Cocky 46th	Junior 2 years	26–9–49	273	20	6,780	3·74	254·33	Wooroloo Night Fighter (8884)
Claremont Mabel 40th	Junior 2 years	13–6–49	273	21	6,288	3·87	243·65	Claremont Baronet (7942)
Claremont Mabel 39th	Junior 2 years	23–5–49	273	20·5	6,736	3·56	239·89	Westby Monarch (5404)
Claremont Mabel 42nd	Junior 2 years	20–9–49	273	17·5	6,277	3·81	239·32	Wooroloo Night Fighter (8884)
Claremont Whitby Maid 68th	Junior 2 years	17–3–49	273	19	6,717	3·51	235·59	Glanavon Dunster (6867)
Claremont Cocky 45th	Junior 2 years	10–8–49	273	18·5	5,695	3·92	22·321	Claremont Artist (7935)
Claremont Beauty 35th	Junior 2 years	6–3–49	273	18	6,159	3·54	218·06	Glanavon Dunster (6867)
Claremont Biddy 94th	Junior 2 years	20–9–49	273	17	6,231	3·46	215·93	Wooroloo Night Fighter (8884)
Claremont Cherry 54th	Junior 2 years	3–10–49	273	20	5,700	3·76	214·53	Wooroloo Night Fighter (8884)
Claremont Cherry 51st	Junior 2 years	17–5–49	273	16·5	6,319	3·36	212·47	Westby Monarch (5404)
Claremont Cleggett 33rd	Junior 2 years	19–1–49	273	16·5	5,089	4·15	211·49	Wooroloo Night Fighter (8884)
Claremont Whitby Maid 69th	Junior 2 years	17–3–49	273	21	6,618	2·19	211·04	Glanavon Dunster (6867)

Claremont Whitby Maiden 7th	Junior 2 years	28–7–49	273	17	6,456	3·26	210·40	Westby Monarch (5404)
Claremont Beauty 34th	Junior 2 years	19–11–49	273	19	6,657	3·16	210·13	Westby Masterpiece (5403)
Claremont Mabel 41st	Junior 2 years	8–8–49	273	16·5	6,064	3·42	207·72	Westby Monarch (5404)
Claremont Maggie Morrison 85th	Junior 2 years	15–5–49	273	16·5	5,929	3·47	205·45	Wooroloo Night Fighter (8884)
Claremont Maggie 30th	Junior 2 years	4–8–49	273	14	4,737	4·32	204·59	Claremont Artist (7935)
Claremont Treasure 55th	Junior 2 years	23–11–48	273	19	6,057	3·34	202·40	Westby Masterpiece (5403)
Claremont Treasure 56th	Junior 2 years	21–3–49	273	13·5	5,125	3·79	194·30	Westby Masterpiece (5403)
Claremont Hilda 20th	Junior 2 years	16–12–48	273	22	6,126	3·13	191·57	Wooroloo Night Fighter (8884)
Claremont Star 40th	Junior 2 years	21–11–49	273	14	4,992	3·73	186·34	Wooroloo Night Fighter (8884)
Claremont Clara 34th	Junior 2 years	14–9–49	273	12	4,701	3·87	182·17	Wooroloo Night Fighter (8884)
Claremont Clarie 7th	Junior 2 years	3–4–49	273	18·5	5,410	3·24	175·28	Glanavon Dunster (6867)
Claremont Cherry 50th	Junior 2 years	25–2–49	273	10	4,170	3·82	159·52	Westby Monarch (5404)
Claremont Star 41st	Junior 2 years	26–9–49	273	11·5	4,384	3·59	157·64	Westby Monarch (5404)
Claremont Pinafore 23rd	Junior 2 years	24–9–49	150	27	4,470	3·12	139·62	Wooroloo Night Fighter (8884)
Claremont Clara 33rd	Junior 2 years	25–4–49	150	17	2,760	3·65	100·89	Glanavon Dunster (6863)
Claremont Laura 15th	Junior 2 years	22–12–49	60	23	1,440	3·03	43·65	Claremont Charles (9187)
Claremont Cleggett 34th	Junior 2 years	7–5–49	60	17·5	930	3·62	33·72	Westby Monarch (5404)

Number of Cows in Average, 128. Average Milk, 6,858 lb. Average Test, 3·42 per cent. Average Butterfat, 234·75 lb.

W. K. BARNES.

Claremont Biddy 71st	Mature	6–6–49	240	6	7,440	3·94	293·49	Westby Monarch (5404)
Valliere Milkmaid	Mature	15–5–49	180	16	4,920	4·00	197·07	Alfa Vale Patrico (3649)
Valliere Primrose	Mature	4–6–49	120	19	4,140	4·07	168·39	Alfa Vale Patrico (3649)
Rosalind Janet 9th	Senior 4 years	6–9–49	150	19	4,260	3·68	156·93	Wallatin Dandy (6370)
Rosalind Janet 8th	Senior 4 years	30–8–49	150	11	2,790	3·42	95·37	Wallatin Dandy (6370)
Claremont Empress	Senior 3 years	26–7–49	120	12	3,210	3·34	107·10	Capel Monarch (7898)
Sarsden Gem 2nd	Senior 3 years	29–10–49	90	11	1,770	3·45	61·10	Glanavon Tich (8119)
Lenmoors Roma 2nd	Senior 3 years	17–6–49	30	23	690	4·74	32·70	Wooroloo Union Jack (7662)
Rosalind Joan	Junior 3 years	28–5–49	150	13	4,110	3·84	157·86	Wattle Creek Prince Pantheon (8835)
Benger Ann	Junior 2 years	1–6–49	240	9	4,470	4·34	194·19	Claremont Watchguard (7950)
Capel Gibson Girl 3rd	Junior 2 years	27–6–49	210	7	4,410	3·92	172·74	Capel Dove King (5579)
Doyson Rose Marie	Junior 2 years	3–7–49	180	9	3,930	4·07	159·90	Wooroloo Noble 4th (6411)
Doyson Marigold 2nd	Junior 2 years	9–7–49	150	16·5	3,915	3·71	145·35	Capel Fairy King (9132)
Capel Starling	Junior 2 years	8–5–49	240	6	3,420	4·07	139·29	Capel Dove King (5579)
Doyson's Joan	Junior 2 years	27–7–49	180	4	2,970	3·93	116·73	Wooroloo Noble 4th (6411)

Number of Cows in Average, 11. Average Milk, 4,240 lb. Average Test, 3·92 per cent. Average Butterfat, 166·27 lb.

FERTILISERS.

The following Fertilisers have been Registered at the Department of Agriculture under the Fertilisers Act, 1928, for the year commencing 1st November, 1950.

Name of Fertiliser.	Reg. No.	Brand.	By whom Registered.	Nitrogen (N) as				Phosphoric Acid (P_2O_5) as				Potash (K_2O) as		Cash Price per ton at Works (W) or on Rail, Perth (P).
				Nitrate.	Ammonia.	Blood and Bone.	Bone Dust.	Water Sol.	Citrate Sol.	Acid Sol.	Total.	Sulphate.	Muriate.	
A.—MINERAL.														£ s. d.
1. NITROGENOUS.														
(*a*) *Nitrogen as Nitrate :*														
Sodium Nitrate	54	Fauldings	F. H. Faulding & Co., Ltd.	16·0	....	....	....	....	....	....	....	....	....	2 6 8 cwt. P
Nitrate of Soda	76	Sickle	Cuming Smith & Mt. Lyell F. F., Ltd.	15·5	....	....	....	....	....	....	....	....	....	
Nitrate of Soda	77	Mt. Lyell as ML in diamond	do. do.	15·5	....	....	....	....	....	....	....	....	....	
Nitrate of Soda	78	C.S.M.L.	do. do.	15·5	....	....	....	....	....	....	....	....	....	
Nitrate of Soda	94	David Grays	David Gray & Co. Pty., Ltd.	15·5	....	....	....	....	....	....	....	....	....	11d. per 2 lb. bag.
(*b*) *Nitrogen as Ammonia :*														
Nitrate of Soda	102	Champion	R. Dundas Smith & Son	16·0	.. .	.. .	....	....	....	....	....	....	....	
Sulphate of Ammonia	1	I.C.I.A.N.Z.....	Cumming Smith & Mt. Lyell F.F., Ltd.	....	20·5	....	....	....	....	....	....	....	....	27 0 0 W
Do. do.	39	Cresco	Cresco Fertilisers (W.A.), Ltd.	....	20·5	....	....	....	....	....	....	....	....	27 0 0 W
Do. do.	55	Fauldings	F. H. Faulding & Co., Ltd.	....	20·0	....	....	....	....	....	....	....	....	1 12 8 cwt. P
Ammonian Nitrate	56	do.	do. do.	30·0		....	....	....	....	....	....	....	....	6 1 4 cwt. P
Sulphate of Ammonia	95	David Grays	David Gray & Co. Pty., Ltd.	....	21·0	....	....	....	....	....	....	....	....	11d. per 2 lb. bag, 2s. 11d. per 7 lb. bag.
2. PHOSPHATIC.														
(*a*) *Superphosphate :*														£ s. d.
Superphosphate 22%	2	Mt. Lyell as M.L. in diamond	Cuming Smith & Mt. Lyell F.F., Ltd.	....	....	....	....	18·0	2·0	2·0	22·0	....	....	9 18 0 W
do. do.	3	Sickle	do. do.	....	....	....	....	18·0	2·0	2·0	22·0	....	....	9 18 0 W
do. do.	4	C.S.M.L.	do. do.	....	....	....	....	18·0	2·0	2·0	22·0	....	....	9 18 0 W
do. do.	40	Cresco	Cresco Fertilisers (W.A.), Ltd.	....	....	....	....	18·0	2·0	2·0	22·0	....	....	10 3 0 W
Superphosphate	96	David Grays	David Gray & Co. Pty., Ltd.	....	....	....	....	18·0	2·0	2·0	22·0	....	....	1s. 3½d. per 7 lb. bag.

(b) Superphosphate and Minors :														
Super and Copper Ore, No. 2	5	Sickle	Cuming Smith & F.F., Ltd.	Mt. Lyell	....	....	Copper 1·0	.... Manganese	15·0	1·50	1·50	18·0	....	....	11 8 11 W
Super and Manganese	6	do.	do.	do.	....	....	....	3·80	15·0	1·75	1·75	18·5	....	.... Zinc	18 2 2 W
Super and Zinc, No. 2	7	do.	do.	do.	....	....	....	....	17·50	1·75	2·0	21·25	....	1·15	11 6 1 W
Superphosphate, Copper and Zinc	8	do.	do.	do.	....	....	1·0	....	14·50	1·50	1·50	17·50	....	1·15	12 8 7 W
Super and Copper Ore, No. 2	9	C.S.M.L.	do.	do.	....	....	1·0	....	15·0	1·50	1·50	18·0	....	....	11 8 11 W
uper and Zinc	10	do.	do.	do.	....	....	....	....	17·0	1·75	1·75	20·50	....	2·50	10 19 3 W
uper and Manganese	11	do.	do.	do.	....	....	....	3·80	15·0	1·75	1·75	18·50	....	....	18 2 2 W
Super and Zinc, No. 2	12	do.	do.	do.	....	....	....	....	17·5	1·75	2·0	21·25	....	1·15	11 6 1 W
Super and Copper, No. 1	13	do.	do.	do.	....	....	1·25	....	17·0	1·75	1·75	20·5	....	....	14 5 10 W
Super, Copper Sulphate and Zinc	14	do.	do.	do.	....	....	1·25	....	16·50	1·75	1·75	20·0	....	1·15	14 18 10 W
Super, Copper Ore and Zinc Oxide	41	Cresco	Cresco Fertilisers (W.A.), Ltd.		....	....	1·00	....	14·50	1·50	1·50	17·50	....	1·50	11 14 11 W
Super and Copper Ore, No. 2	42	do.	do.	do.	....	....	1·00	....	15·00	1·50	1·50	18·00	....	....	11 13 11 W
Super and Manganese	43	do.	do.	do.	....	....	....	3·80	15·00	1·75	1·75	18·50	....	....	18 7 2 W
Super and Zinc Oxide, No. 2	44	do.	do.	do.	....	....	....	....	17·50	1·75	2·00	21·25	....	1·15	11 11 1 W
Super and Copper Sulphate	45	do.	do.	do.	....	....	1·25	....	17·00	1·75	1·75	20·50	....	....	14 8 2 W
Super and Minor Elements ...	46	do.	do.	do.	....	....	1·00	3·00	13·00	1·50	1·50	16·00	....	3·00	17 4 3 W
3. POTASSIC.															
(a) Potash as Sulphate :															
Sulphate of Potash .. .	97	David Grays	David Gray & Co. Pty., Ltd.		....	....	....	....	. ..	....	....	....	30·0	....	11½d. per 2 lb. bag.
(b) Potash as Muriate :															
Muriate of Potash	15	Sun	Cuming Smith & F.F., Ltd.	Mt. Lyell	....	....	....	....	....	....	....	....	....	58·0	33 11 3 W
Muriate of Potash	47	Cresco	Cresco Fertilisers (W.A.), Ltd.		....	....	....	....	....	....	....	....	....	59·0	33 11 3 W
4. NITROGEN AND PHOSPHORIC ACID.															
Potato Manure " C "	16	Mt. Lyell as M.L. in diamond	Cuming Smith & F.F., Ltd.	Mt. Lyell	....	3·50	....	....	14·50	1·50	1·50	17·50	....	....	14 6 11 W
do. do.	17	Sickle	do.	do.	....	3·50	....	....	14·50	1·50	1·50	17·50	....	....	14 6 11 W
do. do.	18	C.S.M.L. ..	do.	do.	....	3·50	....	....	14·50	1·50	1·50	17·50	....	....	14 6 11 W
do. do.	48	Cresco	Cresco Fertilisers (W.A.), Ltd.		....	3·50	....	....	14·50	1·50	1·50	17·50	....	....	14 15 5 W
Lawn Manure	68	Dawn	W. E. Sheffield		....	8·54	....	....	9·23	1·36	0·82	11·40	....	....	17s. 9d. per doz. pkts (5 lb.) wholesale.
5. NITROGEN, PHOSPHORIC ACID AND POTASH.															
Potato Manure " A "	19	Mt. Lyell as M.L. in diamond	Cuming Smith & F.F., Ltd.	Mt. Lyell	....	2·50	....	....	14·0	1·50	1·50	17·0	....	5·30	15 13 4 W
Potato Manure " B "	20	do.	do.	do.	....	3·50	....	....	13·0	1·25	1·25	15·50	....	5·0	16 12 1 W
Potato Manure " E " ...	21	do.	do.	do.	....	3·50	....	....	12·0	1·25	1·25	14·50	....	8·0	17 19 3 W
Orchard Manure	22	do.	do.	do.	....	3·50	....	....	13·0	1·25	1·25	15·50	....	5·0	16 12 1 W

Fertilisers—*continued*

Name of Fertiliser.	Reg. No.	Brand.	By whom Registered.	Nitrogen (N) as				Phosphoric Acid (P_2O_5) as				Potash (K_2O) as		Cash Price per ton at Works (W) oron Rail, Perth (P).
				Nitrate.	Ammonia.	Blood and Bone.	Bone Dust.	Water Sol.	Citrate Sol.	Acid Sol.	Total.	Sulphate.	Muriate.	
5. NITROGEN, PHOSPHORIC ACID AND POTASH *contd.*														£ s. d.
Potato Manure "A"	23	Sickle	Cuming Smith & Co., Ltd. Mt. Lyell F.F. Ltd.	....	2·50	....	....	14·0	1·50	1·50	17·0	....	5·0	15 13 4 W
Potato Manure "B"	24	do.	do. do.	....	3·50	....	....	13·0	1·25	1·25	15·50	....	5·0	16 12 1 W
Potato Manure "E"	25	do.	do. do.	....	3·50	....	....	12·0	1·25	1·25	14·50	....	8·0	17 19 3 W
Orchard Manure	26	do.	do. do.	....	3·50	....	....	13·0	1·25	1·25	15·50	....	5·0	16 12 1 W
Mixture "U"	27	do.	do. do.	....	3·50	....	....	13·0	1·25	1·25	15·50	5·0	....	16 13 10 W
Potato Manure "A"	28	C.S.M.L.	do. do.	....	2·50	....	....	14·0	1·50	1·50	17·00	....	5·0	15 13 4 W
Potato Manure "B"	29	do.	do. do.	....	3·50	....	....	13·0	1·25	1·25	15·50	....	5·0	16 12 1 W
Potato Manure "E"	30	do.	do. do.	....	3·50	....	....	12·0	1·25	1·25	14·50	....	8·0	17 19 3 W
Potato Manure "A2"	31	do.	do. do.	....	2·50	....	....	13·50	1·50	1·50	16·50	5·0	....	16 17 10 W
Orchard Manure	32	do.	do. do.	....	3·50	....	....	13·0	1·25	1·25	15·50	....	5·0	16 12 1 W
Tomato Manure	33	do.	do. do.	....	3·50	....	....	10·50	1·25	1·25	13·0	10·0	....	21 6 3 W
Tobacco Fertiliser	34	do.	do. do.	3·30	....	....	....	12·0	1·25	1·25	14·50	5·7	....	18 18 10 W
Orchard Manure	49	Cresco	Cresco Fertilisers (W.A.), Ltd.	3·50	....	....	....	13·0	1·25	1·25	15·50	5·0	....	17 0 7 W
Potato Manure "A"	50	do.	do. do.	....	2·50	....	....	14·0	1·50	1·50	17·00	5·0	....	16 1 10 W
Potato Manure "B"	51	do.	do. do.	....	3·50	....	....	13·0	1·25	1·25	15·50	5·0	....	17 0 7 W
Potato Manure "E"	52	do.	do. do.	....	3·50	....	....	12·0	1·25	1·25	14·50	8·0	....	18 7 9 W
Rose Manure	69	Dawn ..	W. E. Sheffield	....	5·90	....	....	10·3	1·52	0·91	12·70	....	1·64	17s. 9d. per doz. pkts. (5 lb.) Wholesale.
Bulb and Corm Manure	70	do.	do.	....	1·90	....	....	9·2	1·4	0·8	11·4	....	9·0	do.
Seedling Manure	71	do.	do.	....	5·30	....	....	8·75	1·25	1·0	11·0	....	4·4	do.
Tomato Fertiliser	90	Anderson's ..	Anderson & Company, Limited	....	4·0	..	....	15·0	0·4	0·7	16·1	4·5*	....	
Sweet Pea Food	91	do.	do. do.	....	4·0	....	....	15·0	0·4	0·7	16·1	4·5*	....	
Excellenta	92	do.	do. do.	....	4·1	....	....	11·2	0·3	0·5	12·0	4·0*	....	
Potato Manure A .. .	98	David Grays	David Gray & Co. Pty., Ltd.	....	2·5	..	....	12·0	1·25	1·25	14·5	5·0	....	1s. 8d. per 7 lb. bag.
6. MISCELLANEOUS.														
10–10 5 Liquid Fertiliser	36	Nightingale	Wigmores, Limited	....	10·0	....	....	10·0	....	....	10·0	....	5·0	15s. per gallon.
Liquid Manure	57	Fauldings	F. H. Faulding & Co., Ltd.	....	7·5	....	....	5·0	....	....	5·0	3·50*	....	
Garden Fertiliser	61	Bests	S. H. Best & Son	....	3·0	....	Copper 1·0	10·0	1·20	1·00	12·2	5·0	....	
Growth Fertiliser Tablets ..	65	Summit	L. M. McLeod	....	4·1	....	....	7·0	1·2	0·1	8·3	....	12·2	
Plant Food	72	Dawn	W. E. Sheffield	....	5·23	....	....	11·21	1·41	1·46	14·08	....	....	17s. 9d. per doz. pkts. (5 lb.) Wholesale.
Hypon 2	87	Hypon	Hydroponics Pty., Ltd.....	....	4·0	....	....	5·0	....	....	5·0	....	4·0	3s. per 20 oz. bottle (retail).
Hypon 4	88	do.	do. do.	....	3·0	....	....	6·0	....	....	6·0	....	7·0	do.

Hyphon 6	89	do.	do.	do.		5·0			4·0			4·0		3·0	do.
Liquid Fertiliser	99	David Grays	David Gray & Co. Pty., Ltd.		9·0				6·0			6·0	4·0*		do.
Rose Manure	100	do.	do.	do.		5·6			3·89		1·94	5·93		3·2	3s. 3d. per 7 lb. bag, 28s. per 112 lb. bag.
Powdered Fertiliser	101	do.	do.	do.		5·6			3·89		1·94	5·93		3·2	3s. per 7 lb. bag.
B.—ORGANIC.															
(a) *Blood and Bone.*															£ s. d.
Blood and Bone	35	T.B. & S. in diamond	Thomas Borthwick & Sons (Aust.), Ltd.			5·75			6·75	5·25	12·0				14 0 0 W
Do.	37	Wyndham	Wyndham Freezing, Canning & Meat Export Works			6·0			6·50	9·0	15·5				14 6 6 W 19 12 6 P
Animal Fertiliser	53	Midland Junction	State Abattoirs, Midland Junction			8·0					5·0				13 0 0 W
Blood and Bone Manure	58	Kitchens	J. Kitchen & Sons Pty., Ltd.			7·0			9·0	5·0	14·0				
5%N. Blood and Bone	64	Thomas	W. Thomas & Co. (W.A.), Ltd.			5·0			3·0	9·0	12·0				24 0 0 W
7½%N. Blood and Bone	66	do.	do.	do.		7·5			3·0	9·0	12·0				28 0 0 W
Animal Fertiliser	67	K in diamond A & A Surprise West Aus.	C. A. Kirkby & Sons			5·5			4·0	10·0	14·0				18 10 0 P
Blood and Bone	81	Apex	E. J. Fry Pty., Ltd.			5·25					14·0				26 0 0 W 26 0 0 P
B.B. Fertiliser	82	Wooltana	Westralian Farmers Co-op. Ltd.			4·0					20·0				13 0 0 W 17 5 0 P
Animal Fertiliser	83	do.	do.	do.		4·0					20·0				13 0 0 W 17 5 0 P
No. 1 Fertiliser	84	do.	do.	do.		3·0					30·0				11 0 0 W 15 5 0 P
Bone Manure	85	do.	do.	do.		6·0					24·0				15 0 0 W 19 5 0 P
Blood and Bone	93	Eclipse	W.A. Meat Export Works			6·0					12·0				17 5 0 W
Animal Fertiliser	103	Blue Cross	Agricultural Products Co.			4·75					15·0				2s. 10½d. per 7lb. bag, 1s. 10½d. per 4 lb bag.
(b) *Bone Dust.*															
Bone Dust General Purpose	59	Wattle	Wattle Fertiliser Company				3·39				20·27				13 14 0 W
Bone Dust	63	Falls	Anthony Heslop				3·50		2·25	19·75	22·0				16 10 0 W 17 0 0 P
Do.	86	Wooltana	Westralian Farmers Co-op. Ltd.			3·0					30·0				11 0 0 W 15 5 0 P
(c) *Fish Fertiliser.*															
Fish Fertiliser	75	Cormo	Norwest Fertiliser			5·0					8·0				

* Potash as Nitrate.

Fertilisers—*continued.*

Name of Fertiliser.	Reg. No.	Brand.	By whom Registered.	Nitrogen (N) as				Phosphoric Acid (P_2O_5) as				Potash (K_2O) as		Cash Price per ton at Works (W) or on Rail, Perth (P)
				Nitrate.	Ammonia.	Blood and Bone.	Bone Dust.	Water Sol.	Citrate Sol.	Acid Sol.	Total.	Sulphate.	Muriate.	
(d) *Miscellaneous.*														
Special Garden Fertiliser	38	Blue Cross	Agricultural Products Co.	....	5·75	....	....	....	....	....	16·5	....	1·5	£ s. d. 23 4 5 W 23 14 5 P
Bone Super	60	Wattle	Wattle Fertiliser Company	....	....	....	1·44	1·75	1·25	10·54	20·54	....	....	
Fertiliser	62	Sprout-em	Kag Manufacturing Co.....	....	....	....	2·75	....	5·0	4·0	9·0	....	....	
Superhumus No. 1	73	Superhumus	W. E. Sheffield	....	2·0	....	....	1·80	0·5	0·2	2·5	....	2·0	14s. per doz. pkts. (4 lb.) Wholesale.
Superhumus No. 2	74	Superhumus	do.	....	4·0	....	....	3·0	0·5	6·5	10·0	....	0·5	do.
Fertiliser No. 1	79	Apex	E. J. Fry Pty., Ltd.	....	5·0	....	....	....	....	....	9·0	....	....	18 15 0 W 19 5 0 P
Fertiliser No. 2	80	do.	do. do.	....	2·5	....	....	....	....	....	8·0	....	5·0	18 15 0 W 19 5 0 P
Fertiliser	104	Growmore F/12	C. J. Turle	....	2·2	....	....	0·22	1·8	....	11·4	2·75	....	3s. 2d. per 7 lb. bag.

REVIEWS.

RECENT ADVANCES IN FRUIT JUICE PRODUCTION.

By L. V. S. Charley and others. Commonwealth Agricultural Bureau, London, 1950, 176 pages and 64 plates, English price 15s.

A recent publication of the Commonwealth Bureau of Horticultural and Plantation Crops presents a valuable summary of the practical and technical aspects of fruit juice processing. Entitled "Recent Advances in Fruit Juice Production," the book was written by L. V. S. Charley in collaboration with several other authorities and presented as Technical Communication 21 in February, 1950. It gives an excellent account of fruit juice processing from all aspects of the industry and besides providing a wealth of detail and useful data is well illustrated by numerous photographs and sketches.

The previous publication of this nature was produced by the Imperial Bureau of Horticultural and Plantation Crops in 1939, since when a tremendous impetus to the fruit juice industry caused by the wartime requirements has occurred. This present book covers the advancement which has taken place in the industry during this period.

Commencing with detailed descriptions of processing equipment used by both large and small plants the senior author describes the tremendous advances which have been made not only in the mechanisation of processing but also in the improvement of quality due to refinements in design.

The ensuing chapters contributed in part by the associate authors deal with the production of specific juices such as tomato, apple, grape, citrus, and soft fruit juices. Mention is also made of such products as rose hip syrup which provided an important source of vitamin C during the war years.

Developments in the operations of de-aeration, pasteurisation and concentration are dealt with while sections on the retention of vitamins, the storage of juices and syrups by freezing, the relationship of pectin and enzymes to the final product and a discussion of the factors affecting quality and nutritive value summarise the latest scientific information available on these subjects.

Finally an interesting account is given of the production of fruit juices in various countries of the British Commonwealth drawing attention to the development which has taken place in recent years.

Apart from the wealth of data presented, all sections are supplemented by extensive references to technical works, so that within the 176 pages of this publication are to be found details or reference to all phases of fruit juice production. The book should prove a valuable addition to the existing literature in providing an excellent reference for those associated with the fruit juice industry.

—F.M.

D.D.T. AND NEWER PERSISTENT INSECTICIDES.

By T. F. West and G. A. Campbell (Second Edition Revised), Chapman and Hall, London, 1950, 632 pages and 13 plates, English price 50s.

The vast amount of literature dealing with D.D.T. and its uses which has appeared over the last few years renders any attempt to summarise the field an almost superhuman task. That the difficulties were fully realised by the authors is apparent from the prefaces of the first and second editions, but

23/1pc.

this realisation did not deflect them from their purpose. The result is a volume which all entomologists and many other scientific workers will find of inestimable value.

The book is divided into two parts; the first and major part deals with D.D.T., and the second part covers other persistent chlorinated insecticides such as Benzene-hexachloride. The presentation of the material under such headings as "History and Development," "Toxic Manifestations," "D.D.T. against Plant Pests," "Effect of D.D.T. upon Beneficial Insects and Phytotoxicity" shows the careful sorting of the data which has been carried out by the authors. Long reference lists at the end of each of the 18 chapters, an extensive author subject and systematic index and the inclusion of an appendix of literature appearing after the completion of the main work greatly enhance the value of the publication.

—C.F.H.J.

ANIMAL BREEDING.

By A. L. Hagedoorn, Ph.D. (New Revised Edition), Crosby Lockwood and Son, London, 1950; 364 pages and 30 plates, English price 15s.

A copy of the fourth edition of Dr. Hagedoorn's book "Animal Breeding" has just been received.

In his foreword to the book Dr. John Hammond, head of the School of Agriculture, Cambridge, wrote—

"The livestock industry of this country will be saved many hundreds of thousands of pounds each year if the counsel given in this book is taken by breeders. There remain yet many breeders to be converted to the principle of selecting their livestock according to how they breed instead of according to how they look or perform . . . . . Dr. Hagedoorn is well qualified for his task for he is not only a distinguished geneticist but also a practical breeder of livestock."

The author's visit and his 80 lectures given while in Australia will be remembered by many. The subject of genetics is, however, not a simple one and the minds of those who have merely touched the fringe of it are often left confused. The beliefs which direct the breeding of animals are largely based upon tradition, and in a number of instances these beliefs are now known to be unsound. Until quite recent years it could hardly be otherwise, for the natural laws involved were made known only in the early part of the present century when Gregor Mendel's discoveries were published.

"Animal Breeding" offers a unique opportunity for a better understanding by breeders of the fundamental principles of heredity and it is acknowledged as the most helpful work on genetics yet produced for the practical breeder. The new chapters dealing with poultry and our own Australian problems are of particular interest and importance.

A careful study of Dr. Hagedoorn's book is recommended not only to animal breeders and students but to all who have at heart the best interests of the stock raising industry.

—E.H.B.L.

By Authority: WILLIAM H. WYATT, Government Printer, Perth.